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The Magazine for a Motoring World

FEBRUARY 1951

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FEBRUARY 1951

Published Monthly

VOL. 3 • NO. 2

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COVER: In the last lap of a pre-20th Century road race, Red Skelton, driving No. 7, is riding in the victor's spot. Scene is from MGM picture "Excuse My Dual," which is about a young inventor who builds a horseless carriage for use in the \$5000 purse road race, wins it and the hand of Sally Forrest. Produced by Jack Cummings, directed by Roy Rowland.

PUBLISHERS ROBERT R. LINDSAY, R. E. PETERSEN
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CIRCULATION MANAGER • GORDON BEHN
EDITORIAL ASSISTANT • GRIFFITH BORGESON
DETROIT REPRESENTATIVE • HARRY CUSHING
STAFF WRITERS • H. WIEAND BOWMAN, G. T. DARWIN, E. A. JADERQUIST

MOTOR TREND, U.S. Copyright 1951 by Motor Trend Publications, Inc., 1015 S. La Cienega Blvd., Los Angeles 35, California. Phone BRadshaw 2-6314. Entered as Second Class Matter at the post office at Los Angeles, California. SUBSCRIPTION RATE: \$3.00 per year throughout the world. Two years—\$5.00. Single copy 25c. On sale at newsstands throughout the country. CHANGE OF ADDRESS: Allow twenty days for change of address. Direct all changes to Subscription Dept., and, whenever possible, accompany with mailing label of old address. ADVERTISING: Closes forty days preceding publication date. CONTRIBUTIONS: Manuscripts, photographs, and drawings not returned unless accompanied by self-addressed stamped envelope. No responsibility assumed for unsolicited material. NEWSSTAND DISTRIBUTOR: Independent News Company, 480 Lexington Avenue, New York 17, N.Y.

SHOWS, SHOWS, SHOWS

AS YOU read this issue of MOTOR TREND, you will note that it is predominately a show issue. The reason is that at this time of year attention is being turned indoors to recap what the sporting and motoring world have accomplished during the competition season.

That is why we have devoted four pages of this issue to Motorama, an automotive equipment display that brought out the finest of all things automotive. Featured are the most interesting cars that were present at that show.

In a continuation of the trend that has been started with Motorama, we would like to draw your attention to similar-type shows which are being presented at the extreme ends of the country. One of these is the Sec-

ond Annual National Roadster Show, to be held in Oakland, while the other is the National Motor Racing Exposition to be held at Linden, New Jersey.

The accompanying complete calendar of events should help you decide which shows you can attend. It's well worth while to attend one of them—it gives you a good insight on what's happening automotive-wise.

SHOW	PLACE	DATES
Detroit Second Annual Hot Rod and Sports Car Show	Convention Hall, Jan. Detroit, Mich.	6-7
National Motor Racing Exposition	Linden Airport, Feb. Linden, N.J.	8-12
29th Annual Los Angeles Automobile Show	Pan-Pacific Aud. Feb. Los Angeles, Cal.	16
Second Annual National Roadster Show	Exposition Bldg., Feb. Oakland, Cal.	20-25
Pacific Automotive Show	Civic Aud., Mar. Seattle, Wash.	21-24

YOUR EDITOR SAYS . . .

HAVE you ever looked for MOTOR TREND on the newsstands and not been able to find it? We don't wonder at this (since the magazine is selling very well) but we have run into several instances and we have heard of others where copies on display have actually been overlooked. We have a couple of words of advice on this situation that we believe are worthwhile passing along.

If you're a steady reader of MOTOR TREND, you know by now that we change the cover color each month. This has a dual purpose—it serves to indicate to the newsstand dealer, and to you, the reader, that a new issue is on sale. But, as magazine racks become more packed, it is not always possible to display much of the cover.

Here is where the hint comes in. Not much of the cover actually has to be visible to recognize MOTOR TREND, since the way the cover design has been arranged for the past two months, if only 1½ inches of the left-hand edge can be seen the "MT" (first letter of each word) serve to identify our magazine.

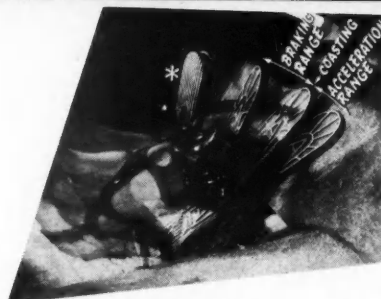
We hope this will prevent you from leaving the newsstand thinking you can't find our magazine. Our only alternative suggestion would then be to order one or two year subscriptions—you'll be sure of getting it then.

SEVERAL MONTHS ago (in October, to be exact) we inaugurated a new feature which we said we would continue if it met with public favor. It has, and since then we've dealt with two additional subjects under this feature. The column we have reference to is "Accessory Trials." In this issue we present the third of these trials—this one dealing with the Wolfer "Clean-Oil" Valve Filter. See page 28.

IN THAT SAME ISSUE (October '50), we spoke about the lack of courtesy on public highways and the fact that maybe we could help correct this situation by starting a new feature called, "And That Taught Me to Drive." It seems that other people agreed with us. We've had a number of contributions from persons who found themselves in some sort of predicament, explaining how they were able to get out of it, and how it changed their driving habits. The first of these articles, written by a reader, can be seen on page 30. And as we said at the time, this feature can be contributed to by any one of you. Don't worry about your literary ability—we'll help you out if need be. We pay for all published articles, so get yours in today.

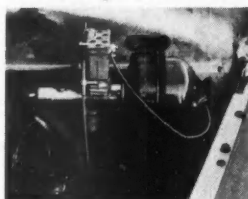
IF YOU'RE A READER of "Letters From Our Readers," you may recall that we printed several letters from our readers in regard to starting a car listing service. At that time we said, "We have had similar requests to start a car listing service, but not a sufficient number of them to warrant adding this feature. However, if we receive additional requests, we shall start such a list." Well, we have received additional requests, in fact, enough to actually start this free service in this issue. If you have a car for sale, trade or swap, or are trying to locate some hard-to-find parts, or are looking for a foreign, antique, custom or classic car, send your request to "Sell 'n' Swap." Be sure to read the requirements first, though (see page 33). —W.W.

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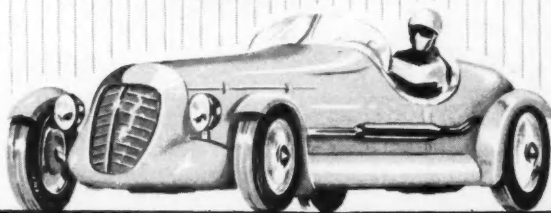
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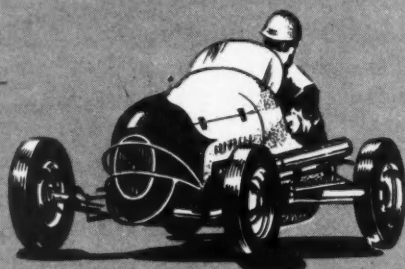
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Letters...

FROM OUR READERS

Letters published in this department are the opinions of the writers and are not to be construed as those of the editors. Address correspondence to: Letters From Our Readers, MOTOR TREND, 1015 So. La Cienega Boulevard, Los Angeles 35, California.

IN A TUNNEL?

Gentlemen:

Congratulations to Mr. Keck for his thoughtful article on car interior safety ["Designed to Beat the Devil," Nov. '50], especially for his suggested use of a flat windshield, cork textured dash, and window type speedometer dial. There are two details, however, that I believe could be improved. First is the impractical use (with anything approaching present steering ratios) of a segmented wheel; more important is the forward placement of the windshield as it appears in the interior perspective drawing. The windshield should be as close to the driver as the wheel will allow for better visibility, lighter impact in case of an accident, reflection elimination, and for obvious advantages in wet or foggy weather. For the last 14 years Hudson has been the worst offender on this last score; on a wet night they give the miserable impression of driving a mobile tunnel with a small semi-circular opening . . .

James Standfield
Syracuse, New York

★ ★ ★

WHERE'S THE CAR?



Gentlemen:

Enclosed please find two pictures of my 1949 Ford that I thought you might be interested in.

In the June issue two 1949 Fords pictured that do not have very many accessories compared to mine . . . Here is a list of what my car has: one spotlight, two outside mirrors, one pair chrome air scoops on wings, chrome plates on front fenders, grille guard, two blue lights behind grille, fog lights, bulldog mounted under each parking light, 1950 Ford plastic emblems on hood and trunk . . . flying wing mounted on hood, one set musical horns (three), one extra deep tone horn . . . rear window wiper, mud flaps with lights, lights in trunk and under hood, directional signals, two small chrome stop lights, two back up lights, Olds "88" emblem on trunk, chrome vent shades on windows, chrome tips for rear bumper, chrome fins on rear fenders, blue fender skirts with two stars and a rocket on each, and a set of Belond headers with Hollywood mufflers.

Alfred C. Taylor
Toms River, New Jersey

—Perhaps reader Taylor could have even more fun with a larger car.—Editor.

★ ★ ★

THE THREAT IS OLD

Gentlemen:

Many thanks for your article and description of the really very interesting and original

Russian record-breaking Hvezda III [Dec. '50].

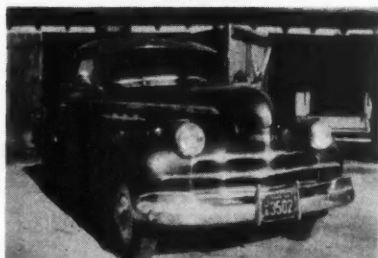
However, as I might conclude from your drawings, Hvezda's engine looks similar to the famous 350 cc (blown) Puch motorcycle engine. For over 20 years the Puch Werke A.G. Graz (Austria) was building motorcycle engines based upon the old two-stroke, two-piston Lister engine. . . . Puch was also building very famous special racing motorcycles with water cooled 175 and 350 cc (blown) engines. So, I guess . . . ?

Milan Novakovich
Detroit, Michigan

—We presume your guess to be that the idea isn't new, therefore the Russians have no threat. As we see it, the threat lies in their ability to copy and improve on basically good designs where necessary.—Editor

★ ★ ★

A CHEVMOUTH



Gentlemen:

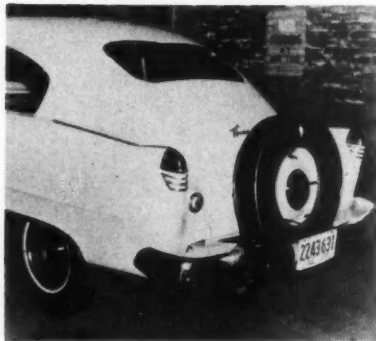
Here is a simple change to a 1940 Chev front end that makes a big difference in the appearance of the car. The grille is a 1950 Plymouth without the parking lights; a little metal filling and leading was done to adapt it to the front end.

The work was done by Kenneth Street Garage.

H. W. Mahood
Beaumont, Texas

★ ★ ★

CONTINENTAL INFLUENCE



Gentlemen:

Speaking of customized jobs, what have we here? In a few spare hours this is what happened to my Henry J.

James A. McGinnis
Chicago, Illinois

★ ★ ★

WE AIM TO PLEASE, BUT . . .

Gentlemen:

I would like to know if you, or someone, would know any tips for personalizing or de-chroming a '47 Plymouth.

Really enjoyed your pictures and articles on personalizing the Chevrolet. About time someone wised up. They have, I think, the best lines of the lower priced cars for such styling.

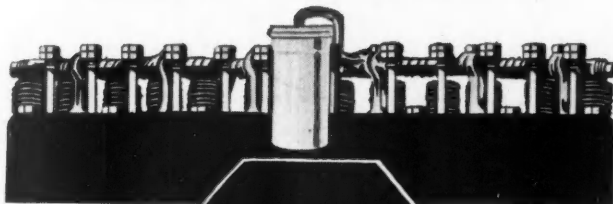
Robert Dauner
Peoria, Illinois

(Continued on page eight)

February 1951

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Letters from Our Readers

(Continued from page seven)

—Basic restyling ideas can be applied to any car, regardless of what model, but maybe some of our readers have some specific suggestions, as used on their own Plymouths. As to restyling, see letter below.—Editor

Gentlemen:

In my opinion, the classic and character cars are becoming increasingly rare in your publication, and the sloppy, gaudy, often downright ugly, rebuilt, rechromed junk is becoming increasingly evident.

[Let's have] far less of the run-of-the-mill reworked trash that is in evidence on every street corner. . . .

James W. Morris
Puyallup, Washington

—Reader Morris will be happy to see the new column started in this issue, concerned only with classic cars.—Editor

Gentlemen:

. . . I put in my vote for more pages like 12 and 13 ("Customs Old, etc.," Dec. '50) . . . let's have less of this "Classic Car" stuff, use the space to better advantage. Let's have something modern, something we all see and all can work with.

Robert Harlow
Louisburg, Kansas

—Like we've said before, we aim to please, and will continue to publish what our readers want. The amount of space devoted to particular items is based on the amount of response we have received to previous articles on the same subject. If you want "classics," let us know; if you want "customs," let us know.—Editor

A RATHER LARGE CAR

Gentlemen:

After reading your article "Motor Trials Ford" [Jan. '51 MOTOR TREND], I began to wonder just how practical a car 196 ft. 8 in. long, 63 ft. 2 in. high, and 72 ft. 9 in. wide would be? I am sure it would be nice for long trips, being about five and a half stories high. Just think, three baths, four bedrooms, a dining room, with fireplace, a living room, and one big party room with all the furnishings, all on wheels.

I believe the garage would be even bigger than the house in which the owner of this fabulous car lived. Is this Ford you spoke about . . . to sell at regular prices or will it be slightly higher than the price of a small hotel?

Peter C. Woolley
Portland, Oregon

—It depends—with or without plumbing?—Editor

MODEL CAR MANUAL

Gentlemen:

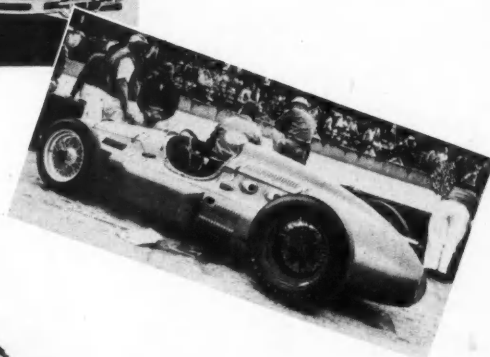
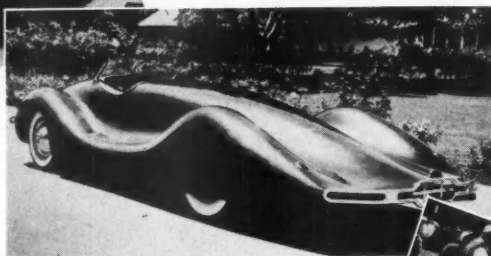
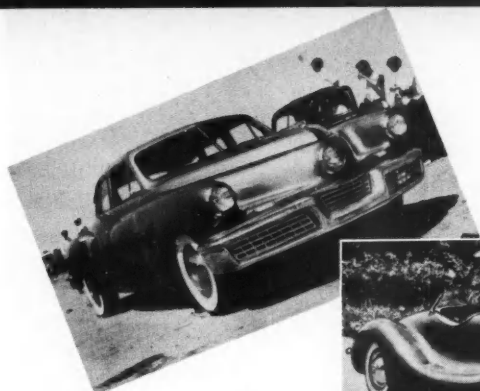
In regard to . . . Tendance Continentale [Dec. '50] . . . you make mention . . . of a British book titled, "The Model Car Manual," which is published in England. . . .

We wish to state, at this time, that we (Gull Model Airplane Company) are the sole and only American agents for this British publisher. . . . We ask that you would please refer all your readers to us, here in the U.S. direct, thus we can help them much more rapidly.

Regarding the price of the book, this has resulted in a few misunderstandings with some of our past purchasers as you have the price listed as "about \$1.25" . . . Our retail price on this book is \$1.98 in the U.S., duty paid and postpaid to the customer. . . .

Austin Hofmeister
Baltimore, Maryland

—Thank you for drawing this to our attention. We are sure that our readers will be interested in knowing this book can be obtained here in the U.S. Address is 10 E. Overlea Ave., Baltimore 6.—Editor



Where Will The Engine Go? FRONT or REAR....



by Wayne Gilbert

WHEN the 1950 Cadillacs were first introduced, considerable speculation was aroused as to the vertical trim strip at the front of the rear fender. Was it the fore-runner of a rear engine design, with these slots to function as air intakes for the engine compartment? Or was it just added chrome trim with no particular meaning?

A few years ago public interest in the rear engine car was greatly stimulated by the demonstration of a few handmade models of the Tucker, featuring a six-cyl. pancake (horizontally opposed cylinders) engine mounted in the rear of the vehicle. Actually—how close are we to rear engine cars and what are the facts that must be considered by the automotive engineer regarding this major change in engine location?

The best possible utilization of space is of primary importance in the design of a motor vehicle. Since the usable space between the front wheels of an automobile is restricted to provide room for steering movement of the wheels, it would be undesirable to move the passengers forward to a point where toeboard width would be affected. To maintain the low silhouette of present day motor cars, it is necessary to have the rear axle behind the back of the rear seat to provide clearance for axle movement. These considerations, together with requirements for adequate leg

room, establish minimum wheelbase dimensions.

Our current automobiles make very efficient use of the restricted space between the front wheels as an engine compartment, sandwiching such components as the battery, steering gear, ventilating ducts, and other accessories into otherwise unusable space. If an engine were to be placed in the now spacious luggage compartment, we would get in exchange a relatively restricted space at the front of the vehicle.

The most important problem introduced by moving the engine from the front to the rear is that of weight distribution. The directional stability of a motor car is inseparably tied in with the distribution of weight on front and rear wheels. Inherent ability to travel in a straight line without constant correction from the steering gear is essential to acceptable handling and safety characteristics. This directional stability is related to the road contact surface of the tires and weight carried by each wheel.

Since the same size tires are used on front and rear wheels of a passenger car, it is necessary to maintain fairly even weight distribution between them. The concentration of weight accompanying a rear engine mounting would, therefore, have serious adverse effects on steering stability. It is possible to com-

pensate for this weight shift by the use of dual rear wheels (common practice in the modern motor coach). For passenger car operation, however, this arrangement would obviously be unacceptable.

Although a major compensating weight shift could be made by mounting the gasoline tank at the extreme front end of the vehicle, this would be undesirable because of increased fire hazard. There is also a psychological feeling that it would be more hazardous to operate a car from a forward location because of greater possibility of injury in collisions, as in the early days of the rear engine motor coach, when considerable reluctance to operate these vehicles was indicated by the drivers.

Studies based on our present know-how indicate that the rear engine arrangement would be more expensive, an important consideration to our highly competitive automotive industry. With current type water-cooled engines, cooling becomes more of a problem. Air taken into a rear engine compartment will generally be more dust laden from front wheel disturbance than that entering the conventional front opening, thus imposing heavier duty on the air cleaning equipment protecting the engine. Added

(Continued on page thirty-one)

MOTOR TRIALS



PACKARD 200 IS THE ONE TO BEAT FOR COMFORT AND PERFORMANCE

by *Walter A. Woron*

PHOTOGRAPHS BY THOMAS J. MEDLEY

MOST of you no doubt remember the famous Packard slogan, "Ask the man who owns one." Packard Motor Co. had a reason to use it once, but now they have even more cause to use such a slogan. It's a cinch that any '51 Packard owner is justifiably proud of the comfort and performance of his car.

We've been exposed to manufacturer's claims and enthusiasm for a long enough time to look upon them with some reservation, and this was naturally so in the case of the '51 Packard. But now that the motor trial of the Packard 200 with Ultramatic is a thing of the past, we know why the Packard Motor Company is so enthused about its product.

On the morning that we were to begin the Packard motor trial, we arrived at Earle C. Anthony, Inc. (1000 So. Hope St., Los Angeles, Calif.), where we had a pleasant chat with George Wagner, Resident Manager. He introduced us to Tracy E. Reigelman, Service Manager of the company, who, in turn, showed us some interesting aspects of the Ultramatic.

The Packard test car was a 200 series Deluxe four door sedan, equipped with the 138 bhp engine and Ultramatic transmission. It had been amply broken in, was tuned perfectly and rode on 15x7.60 tires.

Usually, any Packard is thought of as a large car, but the model that we tested is affectionately called "baby" by the Packard people, having a wheelbase of only 122 ins. Even so, the car is still a big car.

Detailed Test Report

TRANSMISSION: The Ultramatic, which we were giving a test as much as we were the car itself, is a combination of hydraulic torque converter, planetary gearset, and friction clutch. For all normal driving, the gearshift control is set in H (high) and left there. The transmission is operating in torque converter up until 15-17 mph (for normal acceleration, higher speeds for faster acceleration), at which speed the clutch automatically engages, causing the crankshaft to link up directly to the driveshaft. Any downshift that becomes necessary can be made by additional throttle pressure, provided you're below 50-55 mph (above these speeds, you're always in direct drive). L (low) is used for extremely hard pulls, added acceleration or braking. At any speed below 50-55 mph you can move the gearshift selector from H to L for immediate braking. This is decidedly advantageous down a steep incline, for in L the transmission won't shift to a higher range until you make a selector change.

In place of the Ultramatic transmission, which is optional (\$185 extra) on the Packard 200 series, you can have a conventional transmission, with or without overdrive (\$100 extra). If you don't mind shifting, you'll get better performance (including improved gas mileage) by using the conventional transmission with overdrive.

BEHIND THE WHEEL: What can be said for vision, legroom, headroom, feel of the seat and wheel is all visible in the accompany-

A DISCUSSION between editor and tech editor about accessibility of various engine components wound up with conclusion that there is plenty of working room to get at all the accessories

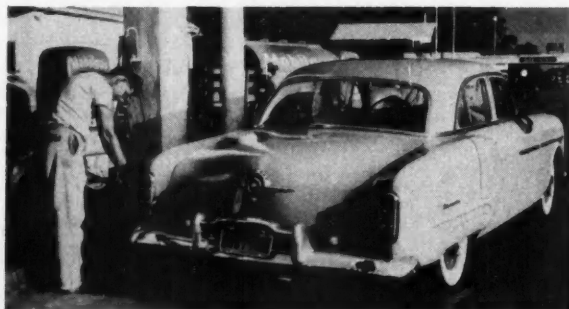
ing photographs. All of these features are above par.

TOP SPEED: We were mildly surprised and gratified by the top speed reached with the Packard 200 test car. The one-way fastest time (95.74 mph) was the highest yet recorded on any motor trial, as was the average of four runs (93.17 mph). The Ultramatic-equipped Packard has a rear axle ratio of 3.9, which is not overly high.

STEERING: Controllability of the Packard is quite good: at no speed or condition of the road does it feel that you might lose control. The one slight objection here is the fact that in going around sharp corners at particularly high speeds there is a tendency of the body to lay over because of the soft springing. Outside of this, the steering ratio is quite satisfactory. The 22½-foot turning radius certainly makes the Packard an easy car to park.

ACCELERATION: As with all automatic transmission-equipped cars which we test, we made acceleration checks using only the high range and then checks starting in the low range and shifting to the high range. And again, as with all previous cars tested, we found that we could improve acceleration by using the latter method. The shift from L to H was tried at several different speeds, but the best shift point was found to be around 45 mph (speedometer reading). The averages

FILLING up with Mobilgas Special gasoline prior to acceleration, economy and top speed runs



of the different conditions are shown in the Table of Performance (page twenty-seven). **FUEL CONSUMPTION:** This factor of the Packard is not the car's best selling point, for as with all big cars, fuel consumption averages are anything but outstanding. Even so, the over-all average for the motor trial (not counting acceleration and top speed runs) was 14.35 mpg. At speeds up to 45 mph on the highway fuel consumption is quite satisfactory; however, at higher speeds on the highway and in traffic, consumption increases noticeably (see Table of Performance). **BRAKES:** The self-energizing hydraulic brakes of the Packard provide a positive, smooth stop, but some brake fade was noticeable after severe and constant usage (such as during our brake checks). Ordinarily, the brakes would not get this hard treatment.

Appearance and Mechanics

There has been a slow reversal of thought that the streamlined body is the most efficient, with Packard following along with the "functional" body on their 1951 models. With their



FLASHING BY at top speed is the Packard 200 on its fastest run (95.74 mph) through the 1/4-mile trap. Control and ride at top speed is remarkable. At high cruising speeds (around 80) the Packard 200 feels as most cars do at 60 mph



STEERING control on dirt is good and car virtually floats over bumps and railroad tracks

design, however, Packard has maintained high esthetic values and has achieved, in the opinion of your editor and technical editor, a body design that is one of the best of the current offerings.

The entire car appears to be well put together and is solidly constructed. And not only does the car appear to be well put together, you can feel it as you drive or ride along. The fit of major components is very good.

The box-section with X-member frame is suspended in front with coil springs and wishbones, and in the rear with long (54 3/4 ins.), wide (2 1/2 ins.) longitudinal leaf springs. An anti-sway bar is used in front and tubular shocks are used all the way around.

Interior appointments and upholstery of the Packard 200 are top quality, while the seat, wheel and dash are all well set up (see photographs).

One of two engines is available on the Packard 200—both of them being in-line

eights, with the same bore (3 1/2 ins.) but different strokes (3 3/4 vs. 4 1/4 ins.). The standard 288 cu. in. engine has a compression ratio of 7:1, but when Ultramatic-equipped, is provided with a 7.5:1 c.r., which ups bhp output by three. The optional 327 cu. in. engine, using a 7.8:1 c.r. gives 155 bhp @ 3600 rpm, and is the engine that is standard on the Packard 300. A heavier crankshaft (by 8 1/2 lbs.) is also used on this latter engine, both using five main bearings. (The Patrician 400 engine—basically the same as the 300—uses a nine-bearing crankshaft.)

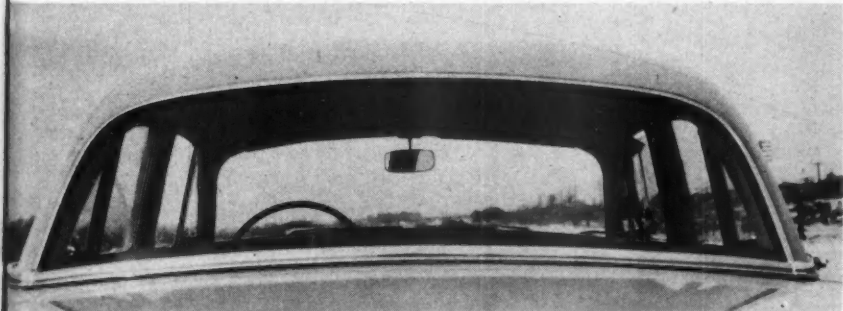
Trend Trials Number

In continuing our policy of giving each tested car a Trend Trials Number, we have arrived at a figure of 32.4 for the Packard 200, Ultramatic-equipped. This figure is a combination of fuel cost per year, cost per bhp and normal maintenance cost, which

(Continued on page twenty-seven)



DON FRANCISCO, MT Tech Editor (above) shows that there is plenty of headroom and legroom behind wheel. Instrument panel is well set up—all instruments being visible at a glance and all controls being within easy reach. Seat provides unusual amount of comfort and wheel is set at an angle that makes it no chore to drive the car



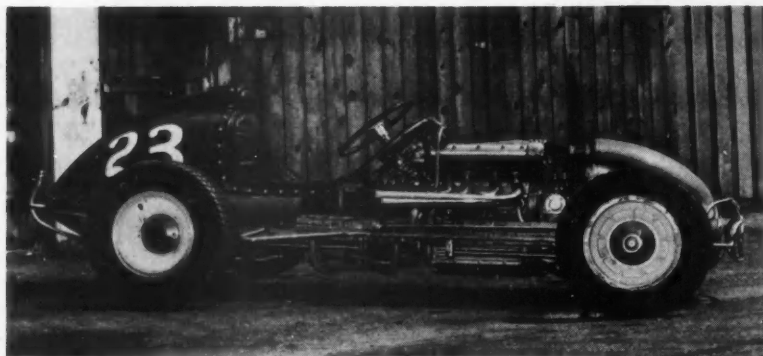
"SHOWCASE" vision (left), as seen from rear through rear window toward windshield. Front corner posts are narrow and left one is in location that does not cause blind spot. Windshield is nearly five feet wide; combination of seat position and raised front fenders makes judging of distances no problem in traffic

CHAIN DRIVE MIDGET

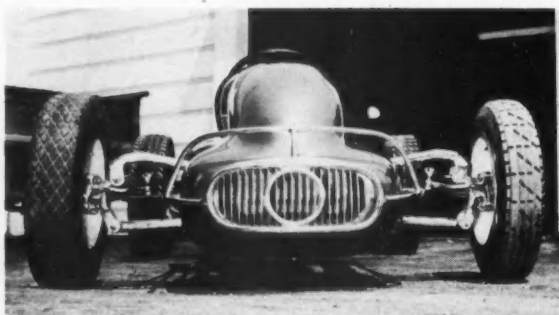
PHOTOGRAPHS BY E. RICKMAN



ALL CROSSED up in a practice spin at Gilmore Stadium is Dempsey Wilson in the beautiful DiMatteo midget. Although it was originally set up for asphalt tracks, its handling characteristics are still fair on dirt . . . not good enough, however, to suit the DiMatteo brothers, Vince and Joe, who say they are going to do quite a bit more experimental work on their race car



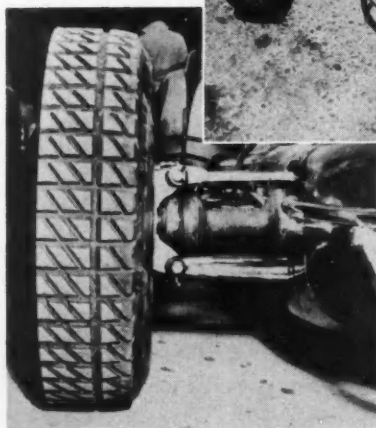
WHEELS of DiMatteo midget are 4140 chrome moly and are only unsprung weight of entire car because of unique independent torsional suspension at all four wheels (torsion bars are below frame rails)



EXTREME lowness of DiMatteo midget is evident here: overall height is 33 ins., ground clearance is 3½ ins. l.f.s. with special-made castings

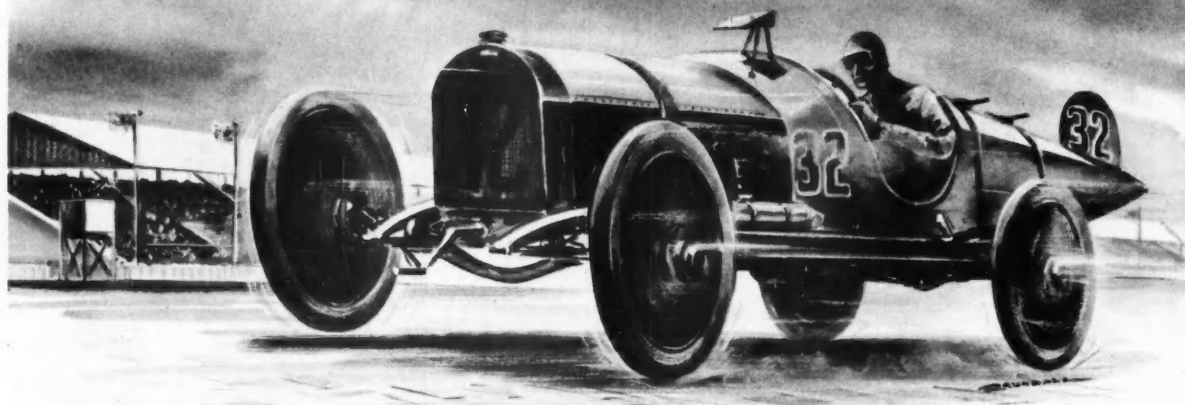


REAR of midget is unusual in that it is independently sprung (torsion bars) and chain drive is used. Quick change gearbox is bolted to chassis, with driveshaft running forward. On both sides of gearbox are short shafts connecting to sprockets, which drive the short rear axles through chains. Short rear axles have ball bearing U-joints. DiMatteo brothers claim this system reduces friction by 95 per cent, thereby taking less horsepower to move the car at same speed



A FABULOUS piece of handmade machinery is the DiMatteo midget, built by two brothers at a cost of \$15,000 to date. Vince and Joe own a machine shop in Inglewood, Calif., and take definite pride in their work, which is self-evident. Design and construction began six years ago and car was completed in 1948. Hasn't run much since then, but has served as a guinea pig. Frame rails are box-channel, chrome moly, body is 14 ga. aluminum, giving total weight of only 900 lbs. Steering is double pitman arm set-up, with gears for box cut by DiMatteo brothers

GETTING INTO HIGH...



The Automotive Industry Begins to Roll . . . 1910-1919

by Lewis Simon

DRAWING BY AL CRUNDALL

NOTE—This article is the third of a four-part series on the evolution of the automotive industry from pre-Revolutionary War days up to the present day. The first in the series (Dec. '50) was concerned with auto news up to the turn of the century; the second installment (Jan. '51) discussed the first decade of the 20th Century; this article is concerned with that period from 1910 to 1919—Editor

WITH the coming of 1910, many automotive innovations were still unheard and unthought of—the industry was yet to get into high gear.

The first notable invention of the second decade was a gearshift lever mounted directly above the center of the gearbox. Up until the time oldtimer Charles B. King adapted this to his first car, the lever had been a remote control, with intermediate linkage to the gearbox.

Then, Mr. McFarlan, a man not to be outdone, offered his car (with his name), "ready for the road." It, the catalog proudly stated, was "a car with the experiments left out!" (Exclamation point ours.—Editor).

The first SGV, boasting the first electric gearshift, was the first true pre-selective shifting device. Operating solenoids, one button for each speed, were located on the dashboard. A speed would be selected, and the corresponding button would be pressed down until it caught. The circuit was now ready to make the desired shift, but the driver could wait as long as he desired before making it. When he wanted to shift, he pressed the clutch pedal *all the way down*, which closed the circuit, and the pre-selected shift would be made. The pedal could be pushed partway down to slip it without closing the switch.

The first car sold with complete equipment as standard was the Owen: luxury items (usually sold at extra cost) included the top, windshield, electric horn, electric acetylene headlights, electric-oil side lamps and electric tail lights!

The year 1911 saw the birth of the Stutz car, its father being Harry C. Stutz, a successful garageman and race driver. Although it was largely a car assembled of purchased parts it had some interesting features: engine, 4 $\frac{1}{2}$ x5 $\frac{1}{4}$ ins., valves, 2 $\frac{1}{4}$ ins. in diameter! The gearbox was attached to the rear axle.

As the usage of autos increased, accidents caused by hand cranking, running from a broken arm to being run over when the car was in gear, were increasing. Many attempts were made to solve this problem. One method was to turn on the switch and jiggle the spark lever. This was based on the hope that a cylinder would contain a fuel charge remaining from the last running and that a spark could be coaxed from the proper plug. As might be expected the next step was usually hand cranking.

Prest-O-Lite had an elaborate method. A reducing valve was added to the acetylene tank used for lighting, which reduced the pressure to two ounces. The eager motorist then pumped the gas through pipes into the cylinders by means of a hand pump on the dash. Then back to jiggling the spark lever in hopes of a spark. It was well to keep the handcrank handy even after installing this equipment.

The American Ever-Ready Works believed they had it with their one of many mechanical starters. Two powerful springs, attached to the crank, were wound up and then released from the driver's seat. None of these systems were successful, and when a good friend of H. M. Leland's was injured cranking his car, Leland decided Cadillac should have a positive electric starter.

After Kettering had developed the starter, Leland ran into opposition in his company. Some officials feared all kinds of trouble up to and including bankruptcy. They engaged experts from General Electric, Westinghouse and the big German electrical company of Seimans & Halske to prove the electrical starter impossible. Then Kettering showed them how it worked. Cadillac also had the first variable speed regulated generator output and used 24 volts for starting and six volts for lighting.

The Mean rotary valve engine and the Reynold's engine with disc valve were both shown, but aroused little attention. Ray Harroun figured in several firsts at Speedway City, Indiana. Driving a Marmon "Wasp," he came in first in the first "500," which he completed in 6:48.8. His car had the first rear vision mirror, the first of many Indianapolis contributions to automotive progress.

Sporty note: The Locomobile was the first

to mount its spare tire in the rear and the drawn radiator shell appeared. Trend note: Studebaker discontinued production of electrics to concentrate on gas cars.

In 1912 Harrison H. Boyce earned a place in the hearts of millions of motorists by inventing his Boyce "Moto-Meter." For today's generation it may be described as a thermometer which replaced the radiator cap and indicated the water temperature.

Cord tires were becoming widely used and carbon black was found to be the best hardening agent for rubber. Black tires replaced the white and colored ones. New chemical accelerators cut vulcanizing time from four hours to less than one.

In 1913 Pierce-Arrow started a distinguishing feature they kept for years: headlights mounted in the front fenders. Hupmobile came out with the first horn button on the steering wheel. The first Chandler featured a Westinghouse starter, while Chevrolet had an air starter. The first adjustable seats were offered by Stevens-Duryea but instead of moving the front seat fore and aft, the rear seat was cranked like a Morris chair!

Wire wheels were back again on stock cars, the same year that Garford announced the first "Cyclops eye" headlight.

In 1914 the Spaulding, built in Iowa, had the first automotive sleeping quarters. By "dropping the hinged back of the front seat, ample space is exposed for comfortable sleeping quarters."

The first V-8 appeared, designed by D. McCall White for Cadillac. The first Dodge Bros. car appeared with steel body and the first pressure fuel feed from a tank in the rear. Phaetons were equipped with side curtains, the first spotlight appeared, and the Bendix drive became available this year.

The year 1915 saw an ingenious idea, probably the last dying attempt to relieve electrical drive of its basic handicaps. The Owen Magnetic employed a gas engine and an Entz magnetic clutch—the heart of the system. The flywheel, instead of offering contact with a clutch plate, had dynamo field coils spaced inside of a cylindrical flange, and the driveshaft, connected only to the differential, had an armature on it. When the car was started, the dynamo acted as a starting motor, the field coils on the flywheel rotating around the armature. With the engine running, the lever on the steering column was moved to the first position. The flywheel produced a slight clutching action on the driveshaft, but generated maximum current which went to a similar dynamo aft

(Continued on page thirty-one)

POWER WITH PRESSURE

POSITIVE DISPLACEMENT SUPERCHARGERS DISCUSSED

by G. Thatcher Darwin

CONTINUING our discussion of supercharging, which began in last month's issue, let's consider now the various types that make up the second major category, the positive displacement blowers. Unlike the centrifugal blower which generates pressure by accelerating the velocity of the vapor charge, the positive displacement types function by bringing mechanical action to bear directly on the charge, increasing its density to a specific pressure before passing it on via the manifold into the engine.

The P.D. (positive displacement) blower types have in common a very high efficiency, their boost curve being almost a straight line, i.e., the ratio of output volume to rpm of the unit itself remains almost constant excepting for internal leakage, or other similar minor losses. This "positive displacement" or "constant boost" characteristic makes this type of supercharger ideally suited for automotive use, since the blower can keep pace with the engine's rapidly changing demands of acceleration and deceleration throughout its whole rpm range.

Different varieties of P.D. blowers have been used for many years on better grade European sports cars, and in kit form they are becoming available for American stock car engines such as Ford, Crosley, and Cadillac, to mention a few. For road racing, of course, P.D. superchargers have become almost universally requisite, thanks to international formulae which stimulate research on small, high output engines.

Even multiple stage supercharging, pioneered by the Germans and further developed by the Italians, is becoming common in racing. In this application, one unit compresses the fuel vapor to a certain point, then passes it into another blower which raises the pressure still more before feeding it into the engine. By this method, extremely high manifold pressures are attained.

For example, consider the Mercedes-Benz Type W-163 which was produced in 1939 just before World War II. This engine of only 183 cu. in. volume, (much smaller than the average American stock car engine), equipped with two-stage supercharging delivering 26.5 lbs. boost, produced 483 horse-

power at 7800 rpm! This output corresponds to a road speed of 195 mph.

Of all the various designs of P.D. blowers, the most popular is the Roots type. This type was the first ever to be used on racing cars, having been fitted to the Mercedes cars for the 1921 Coppa Florio Race. This experiment proved the Roots type's adaptability for racing conditions and it has headed all other designs ever since.

A Roots blower consists basically of two rotors revolving in a case in the manner of a pair of gears, each with only two teeth spaced 180 degrees apart. The rotors are driven and timed with relation to each other by a train of regular spur gears outside the case at one end. The shape of the rotor surfaces is a combination of epicyclic and hypocyclic curves, and the efficiency of the unit depends on the maintenance of extremely fine clearances between the rotors themselves and between rotors and case. These clearances are normally held to about .003 while the timing gears run with about .0006 clearance.

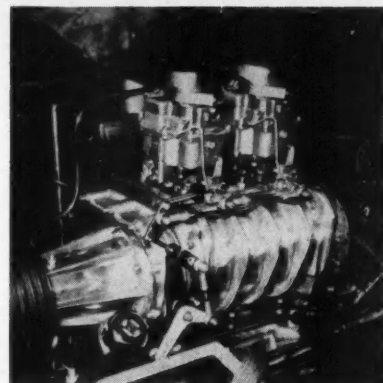
In operation, the charge is drawn in through an orifice connected with the carburetor, carried by the rotor lobe around the inside of the case and finally forced out through an opposite opening by the meshing of the rotors. Blowers of this type can easily provide six to eight pounds boost for passenger or sports car engines, and up to 14 or 16 lbs. for semi-racing engines.

Roots blowers are very reliable, have a relatively low power absorption, require little maintenance, and since there is actually clearance between the moving rotors, only a negligible amount of lubricating oil is passed into the engine.

Blowers of the Roots type are produced by several licensed manufacturers, both here and abroad. These include Wade, McCullough, Borg Warner, Marshall, Nordec, and Italmecanica. While all have the same basic features, they differ in details. Some have three-lobed rotors, some are helical shaped to damp out pulsation, while Wade accomplishes this with square-cut rotors and a "helical" port. Roots blowers also find usage as exhaust scavenging pumps on certain diesel and two-stroke engines, and the basic design is widely used for industrial blowers also.

Next to the Roots type, the vane types find the widest application. Broadly, these consist of a cylindrical case with intake and outlet ports on either side. Within the case revolves an eccentrically positioned shaft to which is hinged a number of thin vanes extending outward to the walls of the case. The shaft, of course, is driven from the engine and its eccentric position in the case permits the volume between the vanes to increase and decrease as they revolve with their outer edges restrained by the walls of the case itself.

In operation, the charge is drawn in by the expanding volume between the vanes as they pass the intake port, carried around trapped between vanes and case wall, and forced out through the opposite port as the volume between the vanes decreases again. In some designs such as the French Co-



E. RICKMAN

A GMC diesel blower adaptation (J.E.M.) for '49-'50 Cadillac engines. This is an example of conversion blowers available for stock cars

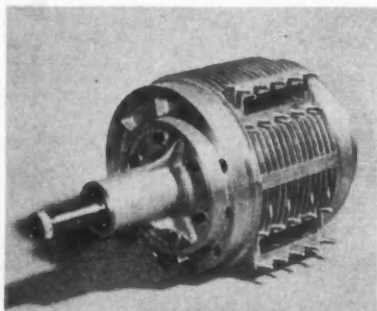
zette, the vanes are actually in contact with the case walls, while in others the movement of the vanes is controlled so that a fine clearance is maintained. In England, vane types are produced by Centric, Power-plus and Shorrock, while Germany produces the very fine Zoller blower.

As a class, the vane blowers are extremely efficient but they have the inherent disadvantage of requiring the continuous lubrication of certain moving parts which are also exposed to the transported fuel vapor. This means that some lubricating oil is carried on into the engine, and the control of this lubricant sometimes presents an awkward problem.

Positive displacement superchargers offer full scope for expression of the inventive mind, and ingenious experimental types crop up occasionally. The Mangoletsi is an interesting example of this group. This model consists of a two-vane rotor in a cylindrical case. The vanes are cleverly driven by coaxial cranks in such a manner that they accelerate and decelerate during the blower's operational cycle, trapping and compressing each charge before allowing it to exit from the case. A novel feature of this type is that the entire volume of the case is swept twice with every revolution. The air discharged is therefore twice the volume of the case less the volume of the rotors themselves, or about $1\frac{1}{2}$ times the case capacity. The advantages claimed for the Mangoletsi are high pumping efficiency, no special lubrication problem involved, simple construction with no abnormally fine clearances, and good internal leak resistance.

From the foregoing we can see that far from being a "new fangled" device, proven types of superchargers have been commercially available for many years. The reader may wonder why, with all its obvious advantages, the supercharger is not fitted to normal stock cars by their manufacturers. The widespread use of blowers in production passenger models is not likely to come about unless there is a stronger trend toward general public acceptance of smaller cars and smaller engines. In this field the supercharger confers its most practical benefits, offering good performance without excessive fuel consumption. It may be argued now that production costs stymies the use of blowers on all but highly specialized types of automobile. Surely, however, the economy of true mass production would offset this objection should any large manufacturer decide to market a blower model at competitive prices.

At any rate, racing and sports car development will continue to improve the supercharger and spread its application. When Detroit is ready, this store of experience will be waiting.



E. RICKMAN

HASSAD-RICHTER eccentric-vane type blower shows inlet and outlet ports. Note eccentricity of the center shaft, relative to the blower case

WHAT WILL THE HENRY J CONVERTIBLE LOOK LIKE



You Tell Us - AND GET PAID FOR IT!

IF YOU think that you know what the Henry J convertible (to be announced sometime this summer) is going to look like, then here's your chance to earn yourself some extra cash.

Because of the terrific response to the Ford Anglia Contest, MOTOR TREND is launching another contest—this time for the purpose of arriving at a design which most closely approximates a practical application of a convertible design to the Henry J (in the decision of our judges). The drawing will be judged mainly on the basis of its practicality and partly on the quality of rendering.

To aid you, we have reproduced a photo-

graph of the Henry J two-door sedan, from which you can make your original tracing and the rendering. Read the official rules before you start on YOUR DESIGN.

This contest is being conducted by MOTOR TREND. The Kaiser-Frazer Corp. is in no way connected with the contest and therefore assumes no responsibility for entries.

OFFICIAL RULES

1. The purpose of this contest is to arrive at a design which most closely approximates a practical application of a convertible design to the Henry J (in the decision of our judges).
2. The prize for submitting the design adjudged

to be the most practical consists of a \$50 Savings Bond.

3. The contest is open to all persons in the continental United States (including Hawaii and Alaska), except employees of MOTOR TREND, their families and their advertising agencies. No entry fee, registration fee, or subscription is required. Contest is subject to all Federal and State regulations.

4. Submit only one (1) drawing of the proposed design, to consist of a quality suitable for reproduction. It can be a line or shaded drawing, preferably in ink. If made in pencil, it should have considerable contrast. It should be made on paper no smaller than 8½x11. On a separate sheet of paper describe, in 250 words or less, interesting points about your design. Mail your entry to MOTOR TREND CONTEST, 1015 So. La Cienega Blvd., Los Angeles 35, Calif. All entries will be held by MOTOR TREND until completion of the contest. Be sure to enclose a self-addressed, stamped envelope if you wish your entry returned. MOTOR TREND reserves the right to publish any drawing submitted.

5. The contest closes at midnight, January 25, 1950. All entries, to be eligible, must bear a postmark on or before that date. In the event that two designs are identical, the entry with the earlier postmark will be the one considered for the prize.

6. Judges' decision will be final.

7. Inquiries as to the status of a particular entry will not be acknowledged. No information about the winning design will be published before the official announcement in the April, 1950 issue of MOTOR TREND.



THE CIRCLE of champions (above) at Motorama: automotive-wise exhibits included the Wynn Friction Proofing Special (1950 Indianapolis winner), the So-Cal Special and Ab Jenkins' Mormon Meteor (27-foot long juggernaut and holder of all existing long-distance records from 100 miles up to 48 hours of continual running)

IN THE foreground of this panorama of automotive equipment (taken before the show opened), is a 1909 Marion sport roadster, from the fabulous collection of Lindley Bothwell. This car set the style for a line of illustrious followers: Stutz, National, Mercer. The jaunty, red runabout can still clip off a sizzling 70 and its condition is typical of the Bothwell stables. Get-up-and-go comes from a four-cyl., side-valve engine, running Bosch magneto ignition. Flywheel is exposed and transmission is a unit with differential housing. Even the tires are authentic "Non-Skids" of the early 1900 period



THOUSANDS of eager motor enthusiasts pressed through the gates of Los Angeles' Shrine Convention Hall between November 16 and 19 to attend the spectacle that was the First Annual Motorama. The show was many things: a vast museum of power and speed, a sweeping cross-section of historic as well as up-to-the-instant achievements in every branch of power transport, a gigantic trade fair displaying the finest products of America's automotive specialty manufacturers.

"Old guard" showmen shook their heads and prophesied, "It won't work—you can't split the public's interest in so many ways." But the public knew better—had no trouble in following the direct line of continuity that flowed from the most primitive gas-engined buckboard to belt-driven motorcycle, to Kaiser War raceabout, to jewel-cases on wheels built for European royalty, to record-shattering speedboats and racing airplanes, to the last word in hand-built roadsters and luxuriously customized American cars.

Occupying a prominent position among the show's fine equipment was the AAA booth, presided over by Gordon Betz, West Coast Regional Director. The four cars on display included three sprint jobs—J. C. Agajanian's No. 98 (driver, Walt Faulkner), Murrell

PAGEANT of POWER

MOTORING PANORAMA AT FIRST ANNUAL MOTORAMA

by Griffith Borgeson

Belanger's 270 Offie (driver, Tony Bettenhausen), and Bob Estes' Merc—and one midget, Perry Grimm's No. 1 Offie.

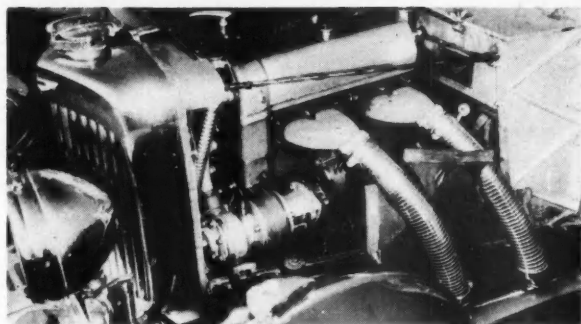
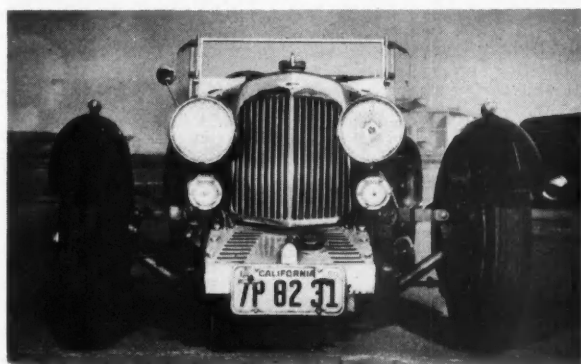
Among the 165 pieces of mobile equipment that gave the show its staggering wealth of interest were such of Lindley Bothwell's treasures as a 1901 Crestmobile, an '04 Reo, Cadillac, and Franklin, an '06 Mitchell, '12 Lozier, and a '14 "T" Ford racer. There was J. D. Stroppe's virgin '24 Hispano-Suiza double-cowl phaeton, and a fine, black '37 Auburn speedster. A '38 P-III Rolls-Royce—one of the rare twelves—stood near Joe Reindl's long '38 Roots-blown 540-K Mercedes-Benz sports convertible. Nick Matranga's maroon Mercury coupe demonstrated the transformation of 1940 into 1960 coachwork.

Ab Jenkins' Mormon Meteor III shared the champions' spotlight with Johnny Parsons' Indianapolis-winning Friction-Proofing Special, and the famous Xydias-Batchelor Bonneville record-setter. Among the sports cars were the Edwards Sports Car of road race fame, Van Trees' SCCA high-point TC MG, Phil Hill's Pebble Beach-winning Jaguar XK-120, and Moss' superfast Cad-Allard.

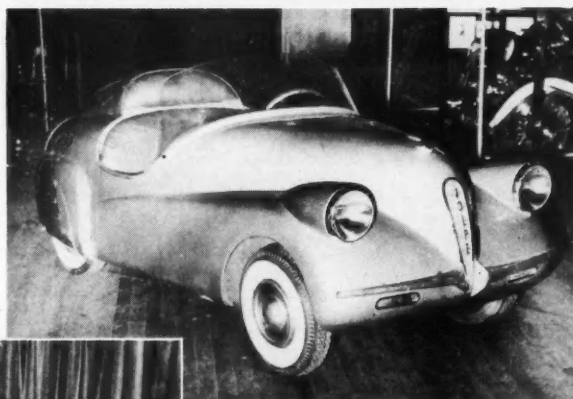
Boeing's gas turbine, powerplant of the world's first gas turbine truck, was shown in cutaway form, and made clear the inner secrets of the engine of tomorrow. These words and the accompanying pictures barely outline the scope of the pageant of power that was Motorama.

PHOTOGRAPHS BY THOMAS MEDLEY,
E. RICKMAN AND FELIX ZELENKA

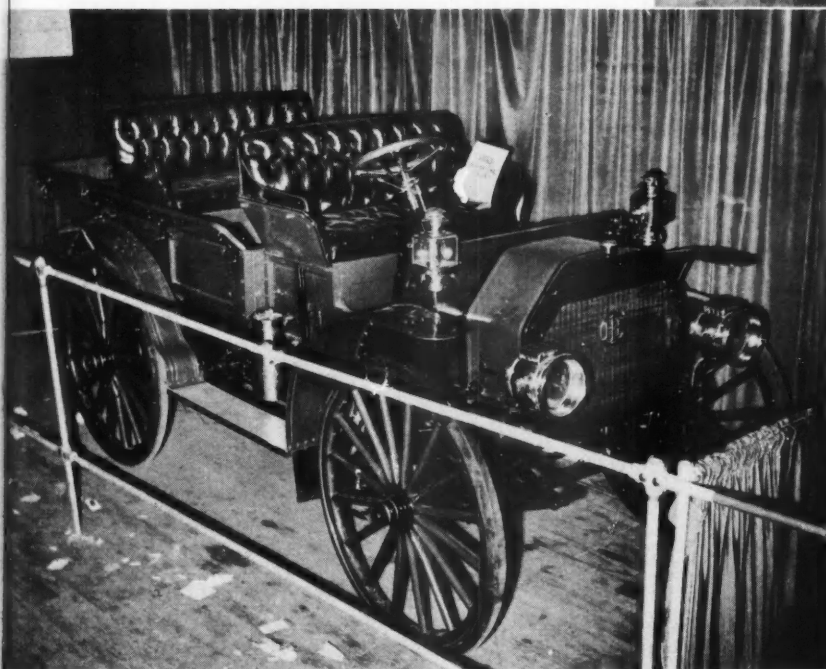
WILLYS WAGNER (right), stylist for the International Division of Ford Motor Co., congratulates **Vince Gardner** on winning the **MOTOR TREND Ford Anglia Body Design Contest**. Wagner then presented Gardner with the \$500 check (to help defray cost of building body for chassis, which he also won). **Frank Kurtis**, chief judge of contest, stands behind Wagner



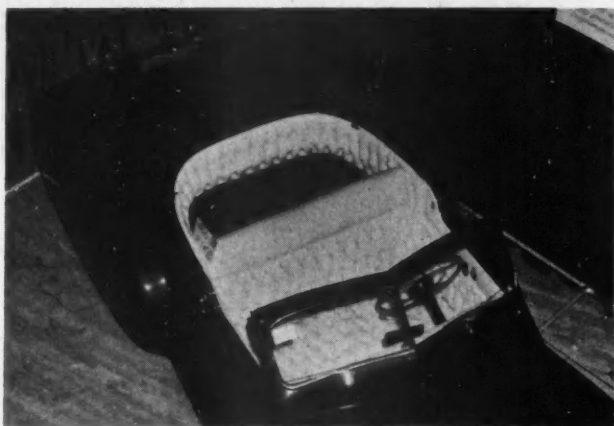
ANOTHER trend-setter (above) was this rakish, olive-green Mark II Aston Martin, dating from the early Thirties. These cars increased the marque's very solid competition footing and indicated the body lines that were to become characteristic of the British sports car. The specimen exhibited at Moterama, and the property of Al Crundall, is probably the only vintage Aston Martin in America. The little car has a 91 cu. in. four-cyl. engine, with single overhead camshaft, two carburetors, Scintilla magneto ignition, and dry sump lubrication. External exhaust flexpipes aid engine cooling while adding to the car's very sporty look



VOLPE runabout (above) is made in Piacenza, Italy, its name means "fox." Power is from a small two-cyl., two-stroke motorcycle engine mounted at the rear and driving the independently sprung rear wheels through universal-jointed shafts. Independent front suspension is achieved by means of a transverse leaf spring. Fuel consumption is around the 80 mpg range

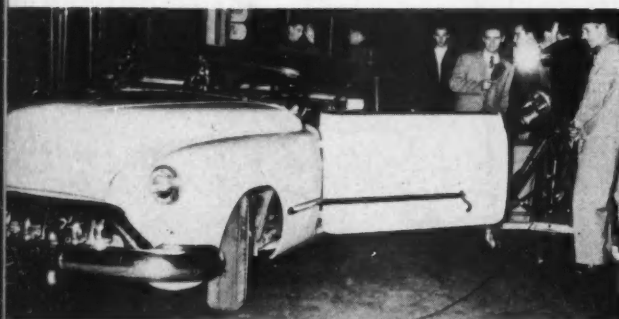


THIS 1907 "horseless wagon" (left) is International Truck No. 689, and is as perfect a job of restoration as unbounded enthusiasm for historic machinery can produce. Finish is in a well-rubbed, rich, red-brown, with gilt striping and the upholstery is in tufted black hide. Even the solid rubber tires on the immense wagon wheels are mint. The engine, located under the front seat, is advanced for its vintage, is a big bore flat twin with overhead valves operated by hairpin-type springs, develops 20 bhp, and drive is, naturally, by chain. Total weight of this hefty job is only 2600 lbs. Owner: E. Seminario

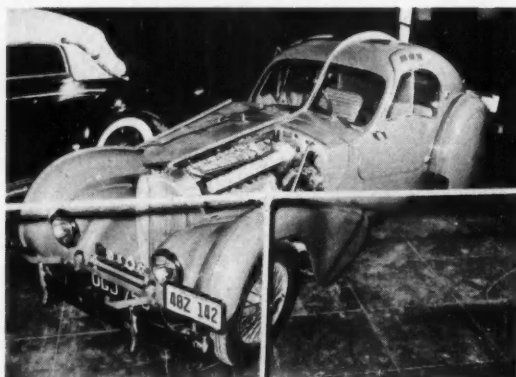


Pageant of Power (Cont'd)

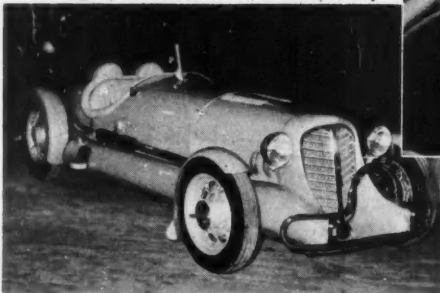
THREE years and \$20,000 have gone into Albert Fitzpatrick's very special Packard (left and below). Designer Phil Lacey started with a 122-in. Packard frame and a "160" engine, upped to 200 bhp output. The body sections were all hand-contoured, the entire layout push-buttonized, the interior, including instrument panel, upholstered in fine, white calfskin. The car is as lusciously low and long as its picture indicates, stands exactly three feet high at the top of its metallic blue hood. The owner has been called for military service and now must sell his car



WITHOUT a doubt, America's most prolific producer of customized cars is George A. "Spell it with a K" Barris. His newest Kustom achievement (above) is based on a '49 Buick convertible. Windshield was chopped four inches, has a removable steel top. Cadillac rear fenders were lengthened three inches and molded into body. A small book could be filled with the modifications and refinements made in producing this unique job—some of the more startling are: pushbutton rigging of the entire car, right down to seat adjustments; vanishing cocktail bar; concealed automatic phonograph. The California Top Shop interior finish is a masterpiece of upholstery in three colors of du Pont Fabrilite; chartreuse and black are the key colors inside and out. Total cost to owner for unique transportation—\$5,000



ROBERT OLIVER'S Type 57 SC "Atlantique" Bugatti (above) was one of the show's most fascinating attractions. This fabulous car is one of Melsheim's last automotive products and reflects the last word in Bugatti refinements. The striking body is of ultra-light, strong Elektron alloy, flanged and riveted for stiffness; suspension is typical, traditional, and tough. The 3.3 litre (201 cu. in.) engine is a Bugatti masterpiece, is a cleanly executed straight eight with gear-driven dual overhead cams and a massive Roots blower; a combination which produces really screaming sound-effects in operation. One of the high performance cars of auto history



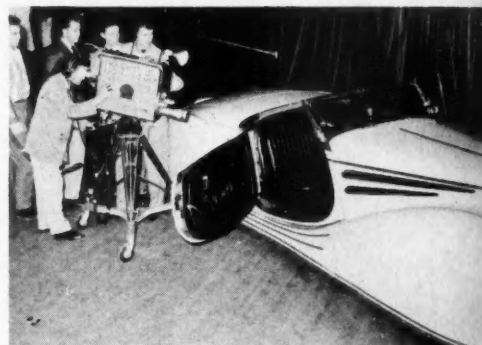
THE STAMMER two-seater sports car (above) took two years in the making. Owner-builder Fred Stammer, a wood-carver, produced the elaborate Harley-Davidson components played an important part in the car's construction. Below deck, a Ford V8 Indian sealed-beams. The leaf-green



THREE identical 1/4 midgets (above) were built by the Fourhelm brothers of Pasadena, brother Harvey's No. One (center) turned out to be fastest, is most consistent trophy dash winner, second in TOMRA point standings. Its body is all plastic and some chassis features are: four-wheel torsion bar independent suspension, 38 in. tread, 60 in. wheelbase, 400 lbs. total weight. The engine is a 30 1/2 cu. in. JAP, runs a 16:1 c.r.

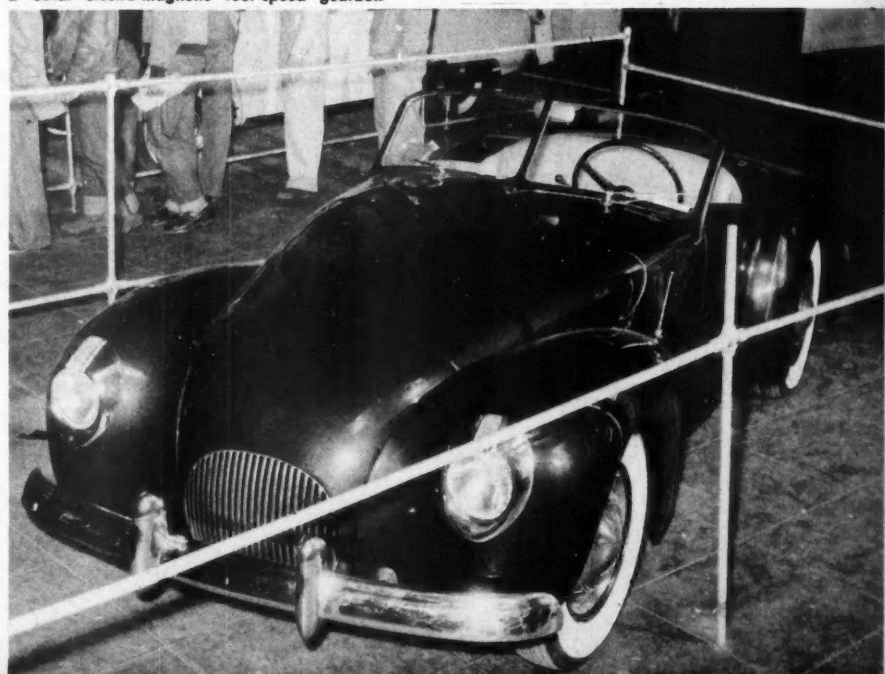


BUILDER L. J. Viersen, Jr. calls his blood-red creation (above and left) the **Skylane Motors Special**. AV-8 power unit, Eddie Meyer-equipped, supplies the urge, is accessible via louvred panel, scissor-hinged at rear. Production car components have been used sparingly, including Buick front and Mercury rear bumpers. Striking touch is spare wheel recessing in rear deck, with zippered white duck boot. This photo was taken on night before opening, when KTLA showed cars on "City at Night." Publisher R. E. Petersen explains features of car to TV emcee



FLASHY Falaschi-Figoni (Paris) coachwork (right) pulled first prize at the '48-'49 Paris Auto Salen for this Type 135 Delahaye, loaned by Col. Irving Fogel of Tempo Records. Features of the body are finning of rear fenders and deck, disappearing top, fully enclosed front fenders. Powerplant is a 95 bhp pushrod six, driving thru a Cotal electro-magnetic four-speed gearbox

THE WOODEN mockup for Ted Johnson's (Hollywood) "Coachcraft Special" (right) was made 10 years ago. The war, of course, intervened and it was just in time for Motorama that this outstanding two-seater was completed. The royal blue body was power-hammered out of sheet steel and no lead or aluminum was used. Upholstery is in natural pigskin, instrument panel is of golden mahogany. Chassis is highly unique: frame consists of Essex rails placed over Ford rails, with the entire frame structure boxed in. Single transverse leaf springs are used front and rear, are specially made and highly limber, the shock absorbers handling most of the ride. Stock Merc engine, 91-in. w.b., weight 2250 lbs.



(above left) was completed in time for Motorama, was under Fred Meyer built the body out of sheet stock and his elaborate, unique instrument panel and steering wheel. Important in the car's construction: rear fenders are of exhaust pipes incorporate Norton mufflers, headlights are Ford V8 has been inserted into a Willys chassis, runs green paint will be active in 1951 amateur competitions

Spotlight on **DETROIT**

by Harry Cushing

DETROIT, MICHIGAN—Don't look for the automotive industry to establish any new peacetime production marks in 1951. One of the factors pointing to a sizable drop in output this year is an ever-increasing shortage of necessary materials. In fact many reliable sources predict the problem of materials will be the industry's biggest headache during the next 12 months. The Federal Government's recent cutback in civilian consumption of copper, aluminum and other non-ferrous metals has sent automotive production experts scrambling to their charts to re-evaluate manufacturing schedules. . . . Each passenger car built uses approximately seven lbs. of aluminum, 29 lbs. of copper and 23 lbs. of other copper-base alloys; and there are few practical substitutes. Thus, the announced 25 to 30 per cent cut in these metals may well slash car building by an equal amount. The metals affected by the governmental curb are vital to the manufacturing of airplanes, radar and other modern war equipment. . . . Not only is the supply of non-ferrous metals a serious problem, but the availability of steel continues to be tight. Some authorities feel that by spring as much



1951 CHEVROLET has the same general lines

as 50 per cent of sheet and plate steel will be earmarked for military uses. . . . As a result, buyers in the next few months may expect to find numerous substitutions incorporated into their new cars. There will be no wooden bumpers, as appeared after the last war, but there is very apt to be differences between the new cars as they are currently being introduced and as they are delivered. For instance, some chrome trim is already being replaced by stainless steel as a temporary solution to the non-ferrous metals shortage. In another case, cars have been shipped minus chrome trim and with paint in its place. Many dealers during the coming year will receive cars with such parts as spare wheels, chokes and so forth actually missing; to be installed at a later date.

WAR NEWS: More than \$3 million in new war contracts have been assigned to the automotive industry. Chevrolet has received an order for 1,000 military sedans. Chrysler has three contracts calling for engines, seat cushions and automotive parts. United Motors Service, a General Motors division, has orders for engines and engine parts. . . . Along with a portion of its physical facilities, the motor car industry has been asked to supply production and technical leadership to the nation's defense re-armament program. Responding to a request by the armed forces

Numerous Substitutions To Be Incorporated Into New Cars This Year

the Society of Automotive Engineers, with a membership exceeding 15,000, has volunteered its services as a consultant. Its first task will be to explore a number of vital military projects for the various branches of service. The Army, for example, is currently detailing the scope and objectives of several important jobs on which it wishes the SAE to develop ideas and information. During World Wars I and II the SAE carried on similar activities, utilizing voluntary help from every technical area in the nation. Many of the technicians who will work on the new assignments were instrumental in the last war in helping the automotive industry achieve a million dollar an hour military production rate.

NEW CARS FOR 1951: General Motors takes the new car spotlight with the unveiling of the 1951 Chevrolet and Pontiac lines.



POWERGLIDE remains optional on Chevrolets

Neither have been drastically changed from the standpoint of styling or mechanics. Both GM divisions have concentrated upon refinements in appearance and operation which should help their offerings remain at the top in public acceptance. . . . Chevrolet announces increased safety, greater driving ease, and style changes affecting the front grille, rear fenders and interior. Mechanical improvements have been made in both the body and chassis. Powerglide automatic transmission, optional equipment for De Luxe models only, has undergone some refinements but remains basically unchanged. Adding to safety there are new, larger brakes which require 25 per cent less pedal pressure for stopping. In addition, control knobs on the instrument panel have been recessed to eliminate protrusions. Chevrolet offers two valve-in-head engines as before: standard (92 bhp with conventional gear shift) and optional (105 bhp with Powerglide). Fourteen body types make up the new line. Two- and four-door sedans are available in the Styleline and Fleetline series. All sedans and the sport coupe come in De Luxe or Special trim. A convertible coupe, all-steel station wagon and the Bel Air hard-top are exclusively in the De Luxe series. A business coupe is available only in the Special series. . . . Pontiac announces 27 styling innovations and 16 mechanical improvements as features of its 25th anniversary model. Most notable among the styling advances is a redesigned grille, larger tail lights, and ornamental improvements both front and rear. Stainless steel trim is being used in several places instead of chrome. Mechanically, Pontiac offers an eight-cyl. engine of 116 bhp and a six-cyl. engine with 96 bhp. Compression ratio for both engines is 6.5:1. Hydra-Matic drive again is offered as optional equipment. Among improvements listed for this automatic transmission is a quick reverse to allow the car to be rocked in snow, mud or

sand. Pontiac's 1951 line includes 15 models. In the Chieftain series there is a four-door sedan, two-door sedan, sedan coupe, business coupe, hard-top "Catalina," and convertible coupe. The Streamliner series offers a sedan coupe and a station wagon. . . . Although all of Chrysler's cars have been shown to the press in Detroit, detailed styling and engineering information will not be made public until sometime this month when the various divisions begin their separate introductions. The long-heralded Chrysler V-8 engine will make its bow on the company's higher priced models. Probably the New Yorker series will be the first to feature the new powerplant.

PRODUCT DEVELOPMENTS: After more than 50 years of automotive history it appears likely that in the near future the average motorist will have nothing to do



1951 PONTIAC has redesigned grille, minor changes. Eight-cyl. engine is 116 bhp and six-cyl. is 96 bhp. Comp. ratio on both is 6.5:1

with his feet but let them ride like any other piece of luggage. A report from research engineers at Rensselaer Polytechnic Institute, Troy, New York, reveals substantial progress in the elimination of the brake pedal. A new device, called a magnetic fluid brake, operated by a pushbutton on the steering wheel, does the trick. Couple this with automatic transmissions and you can see how useless feet will be in the car of tomorrow. The gripping agent in the new brake is a thin fluid which becomes progressively more solid in proportion to the amount of electricity passing through it. The fluid is a mixture of oil and iron rust. Electricity is provided by a vehicle's battery and is controlled by the pushbutton on the steering wheel. . . . A new automobile lacquer process credited with providing faster and more durable finishes has been an-



THROUGH television screen (arrow and inset) operator of scrap baler can see railroad car receiving waste material at Fisher Body Div'n

nounced by the Hercules Powder Company. Applied in a hot spray process, the new lacquer is said to provide the same finish in two coatings as is now achieved where three are used. Basically, according to the announcement, there is no difference between hot-sprayed and cold-sprayed lacquers which now cover about half of America's new cars. The new process, however, permits the application of more solids per coating. In the hot-sprayed process, lacquer is reduced to spray consistency by heating it to approximately 160 degrees Fahrenheit, instead of depending entirely on thinners.

ODDS AND ENDS: Fisher Body Division of General Motors Corporation is one of the first automotive concerns to adapt television to manufacturing. Recently, its Pittsburgh plant was equipped with a transmitter and receiver consisting of two monitors, one camera and one power unit so that the loading of scrap into railroad cars might be expedited. The set-up enables the operator of the scrap baler to see at all times the railroad car receiving the waste material. . . . Along with the television screen, the operator has been provided with an automatic railroad car pulling device. When he sees on the TV screen that the car is loaded with scrap, he simply pushes a button and it moves to a new location. . . . Shortly after Christmas, Chevrolet reached a historic automotive milestone. It built its 25 millionth car, which is approximately 27 per cent of all the automobiles produced in the United States since 1900. . . . Buick, too, has reached an all-time production goal. In 1950 it made over 500,000 cars, and is now tooled to manufacture better than half-a-million automobiles annually. The GM division's goal is to supplant Plymouth as the third largest producer. . . . According to latest estimates by the Interstate Commerce Commission private automobiles account for 85.5 per cent of all intercity passenger miles in the U. S. Such passenger travel is said to total over 382.8 billion miles yearly. . . . General Motors has just finished paying the largest tax ever filed by any Corporation in history. If you think you have a tax problem, look at what GM paid for the year 1949 to the Internal Revenue Collector in Detroit—\$444,377,889.44. . . . And, speaking of taxation, Chrysler reports that in the last 10 years it has turned over to the Federal Government nearly twice as much money as the net profit it has earned for the same period. Here are the figures—\$870 million in taxes as against \$494,479,000 net profit.

HIGHWAY SAFETY: With more than 45 million motor vehicles now in operation the automotive industry is intensifying efforts to make driving safer. Both the American Automobile Association and General Motors have embarked upon programs aimed at training and educating young drivers of high school age. . . . In cooperation with the National Commission on Safety Education of the National Education Association, GM has produced a series of motion pictures and slide films designed for teaching students. Each film is an instruction unit providing specific coverage of a single topic. Subjects discussed include driver qualifications, functioning and care of the automobile, basic driving techniques, rules of the road and advanced driving skills. Educational authorities who have previewed the series say they will greatly facilitate the presentation of effective instruction in the subject, and will help fill a long standing need of high schools and other organizations for good audio-visual materials on driver education. . . . The AAA is taking an active stand for nationwide driver training in the country's high schools. Comprehensive, practical driver training can be given every student for \$30, less than the cost of repairing one broken fender.

HERE'S GREAT NEWS for Olds 88 and 98 Owners

YOU are driving a fine Automobile that commands a lot of respect for its outstanding performance, acceleration and top speed and you may be completely satisfied. If you are satisfied, we congratulate you for your choice of a fine automobile and suggest that you turn the page, because this message is not for you.

ON the other hand, if you so pleased with and proud of your shining Mass of Power that you would be interested in making a great mechanical improvement at a nominal cost, we've got news for you.

The story begins with the excessive back pressure present in stock manifolds and the outstanding success of the Equa-Flow Exhaust System first designed for Fords and Mercurys. Extensive tests were made to determine just how much improvement could be made in Horsepower, Performance and Efficiency by reducing Exhaust Back Pressure to an absolute minimum. The results of these tests plus the complimentary comments of Thousands of satisfied customers, convinced us that a definite improvement had been made and also that the Average Motorist desires to improve the performance of his Automobile if he can do so at a reasonable cost and without too much effort required in making a change.

IN the meantime, we were receiving countless inquiries and orders for a similar Exhaust System for the Oldsmobile 88's and 98's. We postponed the manufacture of this System for many months due to mechanical obstacles and also we did not feel positive that there would be enough demand to justify the initial cost of going into production on this New Model. Finally, we added it up both ways and decided that it would be cheaper to design, test and produce an Efficient Exhaust System for the Oldsmobile than it would be to continue answering letters from hopeful Customers and letting them find out that we were sleeping and didn't have an Equa-Flow Exhaust System to pull the cork out of their Rocker Power Plant.

THEN it happened. The lid blew off and it woke us up, but good! We made some tests before and after installation of the Equa-Flow Exhaust System on an Olds 88. The results, by comparison, were so great that we are reluctant to say what the figures were at this time, except that there was considerably more improvement than on the Ford V8. At the time of this writing we are conducting additional tests on another Automobile, a new 1950 88, so that we may prove or disprove our initial tests. As soon as we are positive of the results, we will print them, however anyone who is interested in the results of the tests on the Ford V8, may obtain them free of charge at the Southern California Muffler Company, 11039-49 Washington Blvd., Culver City, Calif., or at any of their Dealers.

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EQUA-FLOW Exhaust System complete with MELLO-TONE MUFFLERS (Quite Loud) \$74.50

☐ Complete with LEFT STOCK MUFFLER only. Use with present Right Side STOCK MUFFLER (Quiet pleasing tone) \$73.50

☐ Complete Except for MUFFLERS (Use any type or make of MUFFLER) \$67.50

☐ EXHAUST HEADER AND EXTENSION SET (Includes HEADERS, EXTENSIONS, BOLTS, GASKETS and CLAMPS) \$59.50

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NAME AND ADDRESS CLEARLY IN MARGIN

THE SPORTING SCENE

PHOTOGRAPHS BY GRIFFITH BORGESON

THE BEST in the east will be on display under one roof from February 8 to 12, when the National Motor Racing Exposition is launched for the first time at Linden Airport, New Jersey. It will present a true cross-section of things automotive, including top Indianapolis race cars, midgets, dirt track jobs, modified stocks, customs, foreign cars, hot rods, racing boats (inboard and outboard), racing airplanes and motorcycles. This exposition, first of its kind to be presented on the eastern seaboard, is intended to give the public a chance to see cars they've read about but never seen, also to see and meet the many colorful drivers and owners of the nation's top speed equipment. The directors of this great exposition are well known to the racing enthusiasts of the east coast. They are Bob Laurie and Bob Streeter, promoters of many of the outstanding eastern



PIT WORK at Pebble Beach though "amateur" was efficient. Alan Moss did a heroic job, cured our Cad-Allard trans. in less than four minutes

competition events. Representing the California facet of the speed movement will be such names as Auto Accessories and our own Motor Trend Publications. If you're anywhere near Linden, New Jersey, from February 8 to 12, don't miss seeing the National Motor Racing Exposition at Linden Airport. If you're a motoring fan, we know you won't be disappointed.

DROPPING THE CURTAIN on night racing at Gilmore Stadium, "Indianapolis of the West," the AAA midgets bowed out there for the last time on November 24. Although one more day race may be scheduled at Gilmore (in Los Angeles), the stadium built especially for the midgets is scheduled to be demolished—to make room for a huge television center. The final Grand Prix (150 laps—37.5 miles) on the ¼-mile dirt track was an interesting affair, even though Bill Zaring jumped into the lead on the second lap and was never headed. The race, however, was further back—for second place (between Bob Ball and Perry Grimm) and also provided by the smooth driving tactics of Tony Bettenhausen. Tony moved from 8th to 5th in 72 laps and was moving into 4th place when he blew a tire, taking

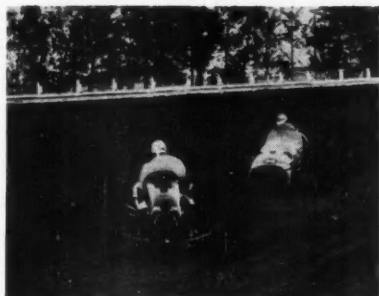
him out of contention. A thrilling finish was provided by Grimm, who made a fast-closing move to get second place in the last five laps—and he came within a foot of doing it.

IF "PIT TALK," newsletter of SCCA's New England region, is any indication, the boys and girls in that corner of the country have more fun than anybody. They certainly have the equipment, and the results of every meet list much exotic machinery: Duesies, Rolls, Rileys, Lagondas, Cisitalias, Ferraris, Maseratis, MGs, 120s, and, broadmindedly, Plymouths and even Fords. The region's Concord-Durham T&T (Trial and Tour) was a high point of the winter season, consisted of a 90-mile run through the wastes of backwoods New England with four check points and predetermined average speeds. The course selected was a challenge to navigating as well as piloting ability, and final mileages showed that almost half the 20 cars had taken the long way to the goal. Top three in the T&T were Harry Churchill (Dues.), Charley Deane (MG TC), and Phil Cade (Dues.). . . . And the SCCA's Chicago region has come up with a new twist this winter, the Silly Rally. While this group does not ignore racing, fun is the avowed raison d'être, and the Silly Rally is a series of skill tests elaborately swathed in horseplay. A typical event is the Back Seat Driving Contest invented by fertile-brained Activities Chairman Bayard Sheldon. A blindfolded male sits at the controls, an alert lady beside or behind him. The job is for the team to make its way around a prescribed course, then place the car neatly in a well-defined parking spot. The usually frenzied antics of the contestants create a situation hilarious to all but themselves and, just to make it interesting, a team frequently comes along, usually a married one, that carries the whole thing off as though it were daily habit. Another Silly Rally event this season was termed "Practice for Le Mans." Unaware of what was in store for them, 15 drivers stood beside their lined-up cars. Instructions were, "Start your car, drive it across the road, remove one spark plug, run with it to the girl on the starting line"—a quick, if slightly brutal, way of demonstrating whether the car owner knows the rudiments of what's beneath the hood. Several of the boys didn't—but probably do now!

WANT TO BUY an American-built Le Mans contender? Authoritative rumor has it that Briggs Cunningham is now building a string of cars for the '51 24-hour classic, in order to satisfy the "production car" requirement. The Cunningham products not reserved for the race will undoubtedly find their way to the hands of private owners. . . . Lowering blocks for TD MGs have been placed on the market by a well-known Southern California sportsman. Interviews with users have so far revealed nothing short of complete satisfac-

tion. General opinion is that the car's looks are improved, cornering is vastly better. Manufacturer's address will be sent on request.

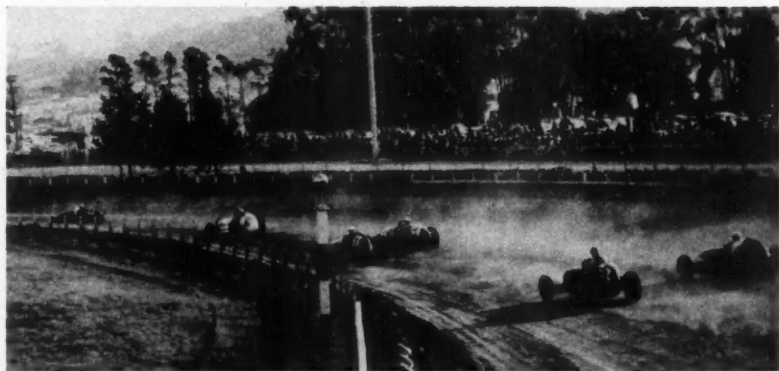
NOTHING SUCCEEDS LIKE success: Representatives of the Los Gatos, Calif., Chamber of Commerce attended the Pebble Beach Road Race, were impressed by the orderliness of the meeting, saw that their hilly, beautiful town would make an ideal setting for a similar race. Result: Northern California's SCCA has been offered the use of the Los Gatos landscape for a charity benefit race, and the cooperation of all the local civic clubs. . . . An aspect of Pebble Beach not touched upon in last month's MOTOR TREND was the remarkable efficiency of many of the pit crews. It came as no surprise when,



CORNERING with a vengeance: In a terrific slide at almost full throttle, Bettenhausen slices past Agabashian at Bay Meadows (in California)

at the post-race victory dinner, a trophy was presented to Arnold Stubbs' smartly uniformed, on-the-ball crew. Victorious Phil Hill's pit boys worked impressively and Michael Graham's outfit was amazing. Before the main event it was found that the shifting forks in the gearbox of Graham's Cad-Allard were bent and useless. The start of the race was delayed for scant minutes, while the pit crew whisked the cover off the transmission, applied an acetylene flame that appeared from nowhere, bent the forks back into line by dead reckoning, slapped the cover back on, pushed off a smoothly operating car.

BIG CAR AAA 100-Miler at Phoenix, Arizona, Fairgrounds drew the biggest race crowd in the State's history. Not the smallest reason for the turnout was the fact that Phoenix's own Bobby Ball, Arizona's invincible midget king, would be there, driving an Indianapolis-type car for the first time. Talent tells, and so does knowing every bump on the track: Bobby made a dazzling debut by racking up the fastest qualifying time of the entire field, 37.77 for the mile. And, having attained 95.31 mph, Bobby rendered the track the nation's fourth fastest mile dirt oval. But the race is not always to the swift-



THE START at Bay Meadows—Faulkner (No. 98) seems to lead, but Bettenhausen is already ahead



BAY MEADOWS' trophy first went to Bettenhausen, was immediately re-awarded to Sam Hanks—basking here in brief glory. Re-check gave the race and \$3120 purse to Bettenhausen

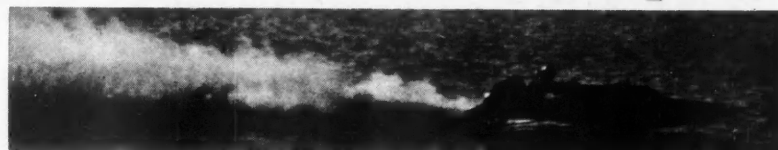
est, and Ball's rear axle disintegrated while he was running third in the tenth lap. All the Old Masters were there, with the situation coolly in hand until Paul Russo blew a hoop on the same lap, brought Henry Banks, Duke Dinsmore, and Troy Ruttman crashing on and around him. Banks managed to get back into the race, Dinsmore and Ruttman retired to the pits, and Russo went to the hospital with a broken shoulder bone. Meanwhile Tony Bettenhausen in his skinny, screeching No. 99 set the pace for the pack until the 80th lap, when a flat drove him to the pits. Jimmy Davies, the Van Nuys Sam Hanks protégé, found the moment he'd been waiting for, slammed his No. 22 Pat Clancy Special into the lead and went full bore till the checker told him that victory and a \$2400 slice of the \$10,000 purse were his. Bettenhausen had screamed back into the fray after forty seconds in the pits, fought for and earned second money. Johnny Parsons coolly brought the Wynn's Special into third spot.

BAY MEADOWS' AAA 150-Miler was no less nerve-racking for Bettenhausen, whose consistent hard driving has picked up great momentum as the season has worn on. Again, a huge crowd turned out for the Kyne-Agashian sponsored tourney, first Big Car event in the San Francisco area in many years. All the favorites were there, including that beautiful driver and home-town boy, Freddie Agashian. Bettenhausen pushed his Belanger No. 99 around in the record time of 38.02 in the time trials, led from flag to flag in the race itself. He drove calmly, steadily, and awfully fast. He hadn't even made a fuel stop when the checker flagged him in the winner. But immediately there were gripes: Tony hadn't taken his extra lap; Sam Hanks, hot on his tail, had. So the trophy was snatched from Tony, tossed to Hanks, who got the crowds, kisses, and flashbulbs. Then an anonymous voice came over the P.A.: "Tony got the checker, didn't he? If the flag doesn't mean anything, throw it away." There was a tense checking of the official tape, and, after an hour and a half, the verdict was announced: Bettenhausen was the victor, \$3120 richer, vastly more wealthy in championship points. Hanks was officially second and Bill Schindler third. **MOTOR TREND** asked Bill Kyne, veteran producer of big league shows, "How did you like it?" Said Kyne: "I like it this much—next year the guaranteed purse goes up to \$20,000." . . . And, for the year's champion of champions, we wait for results at Darlington; the 200-Miler there will decide one of the closest contests in American racing history.

A **TRANS-NEVADA** stock car race, similar to the celebrated Pan-American Road (Continued on page thirty)

February 1951

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In all the field of motor sports—track, lakes, marine and road—there is no name in cams, engine modification and equipment to match—

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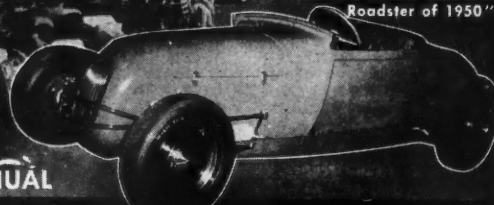
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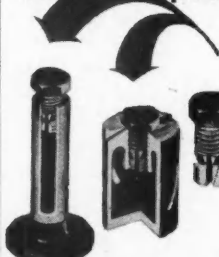
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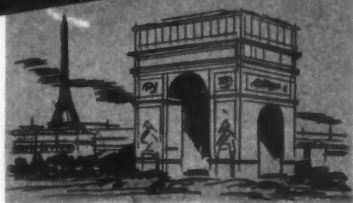
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Twenty-three

tendance continentale



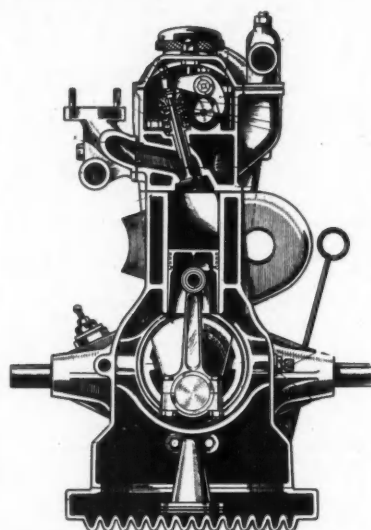
by A. Devereux

FRANCE: The 37th Salon de l'Automobile, Paris, was its traditional self: exciting, cosmopolitan, and unique, thanks to its emphasis upon lavish and glamorous coachwork. A real high spot of the show was the Nash-Healey, a handsome example of Anglo-American cooperation alluded to here last month and to be described in detail in due course. A sellers' market still prevails strongly in France and there were few home-grown novelties to be seen. However, the Italian trend toward quality coachwork on light, inexpensive chassis is gathering popularity here and the principal coachbuilders are experimenting with the "economy" chassis—Dyna, Vedette, etc.—with interesting results. . . . Renault has added to its line, amplifying the 4CV rear-engine range with a new 2.3-litre four-cyl. front-engined job. The new car is primarily intended to restore part of Renault's traditional hold on the taxi industry, usurped in recent years by the Peugeot 203 and Ford Vedette. The Hotchkiss Anjou has undergone fender and radiator modifications, and the Hotchkiss Gregoire has yet to enter the production stage. The 2.2-litre Salmson has been radically redesigned, with head, block, crankcase, pan, and con rods now all of aluminum or light alloy.

ENGLAND: English auto production as a whole is finally acquiring a really post-war look. An exciting development is the new Ford luxury line. Added now to the familiar Anglia and Prefect are the beautifully styled Consul and Zephyr Six. The Consul is powered by a four-cyl. 1508 cc (92 cu. in.) engine, the Zephyr by a 2267 cc (139 cu. in.) six. They develop 47 and 68 bhp respectively and both have overhead valves! . . . Austin made the limelight at Earls Court with handsome new bodies for their A40 and A70 series. The latter consists of a sedan and convertible coupe which both possess a

French and English Auto Shows Introduce Interesting New Models

sort of scaled-down Daimler-esque elegance and spaciousness. Perhaps the most interesting of the newcomers is the smart little A40 convertible coupe, whose standard engine has been enlivened by dual carbs, gives 46 rather than 40 bhp, and is capable of about 75 mph. . . . Not too long ago the automotive world was soundly startled by the appearance of the Jaguar XK120, with its tremendous performance at a remarkably low price. It was rumored then that the factory expected to lose money on the XK120, and produced it primarily to boost the fame of the make and the sales of the Mark V sedan. Today, with well over 2000 XK120s sold, the factory is more solvent than ever and has dropped a new bomb on the world market—the Mark VII sedan. The Mark VII has all the sweeping grace of the Mark V, plus Yankee roominess, plus the phenomenally flexible twin overhead camshaft XK120 engine! And all this is offered at the standard Jag price, the same for all models. . . . Progress note: Jowetts for '51 have given up hydraulic self-adjusting tappets in favor of the manually set variety. . . . Aston Martin, one of the most venerable names in British sports cars, has a tempting line for '51. Two body styles are available, sedan and convertible coupe, both very dashing. The dual overhead camshaft six-cyl. engine can be had in either of two versions, 6.5:1 compression ratio and 105 bhp, or 8.2:1 and 120 bhp—this out of 2580 cc (154 cu. in.). There are four different rear end ratios to choose from. It was, incidentally, the Aston Martin sedan which set new lap speed and distance records for the 3-litre class at Le Mans this year. . . . Joseph Lucas, Ltd., the great electrical equipment manufacturer, has just released a revolutionary headlight system which will undoubtedly become standard equipment on new British cars in the very near future. The "Square-pattern Lens" of the new light consists of 160 strips, an inch deep by ¼-inch wide, each strip fluted and prisms to bend the light down and fan it out. The idea is, of course, to get as much light as possible on the road, keep as much as possible from going



FOUR-CYL., 36½ cu. in. Moretti engine is well designed—note rigid symmetrical block, good water jackets, porting, ohv, double valve springs

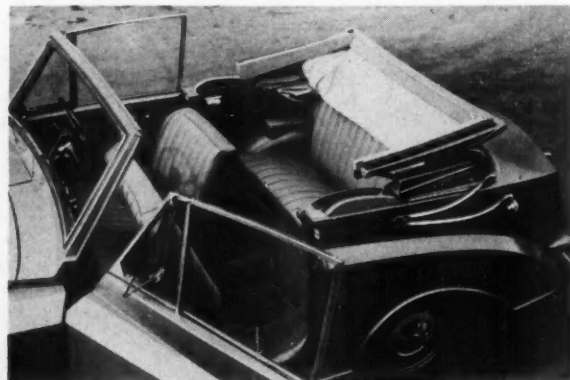
high, where its only effect is to blind oncoming motorists. The new system promises to be the biggest advance in anti-glare illumination since the still-born American Woodlight of the 'twenties. English motorists have for years been demanding more really efficient lighting. Moral: if you want it, ask for it. . . . Morris Minor has added a smart little four-door sedan to its '51 line, for export only. . . . Persistent rumors that the current bellicose world trend would revive gas rationing have been blasted by no less an authority than the House of Commons. There was never a more unpopular form of rationing in the Isles and many votes were lost to the administration because of it. The surprising fact is that consumption of Britain's fuel supply has increased only slightly since de-rationing. . . . The Nuffield Organization (Morris, M.G., etc.) will stock-equip all their cars with TV suppressors. The rest of the industry will probably follow suit.

ITALY: In the last Mille Miglia countless small fry followed in the wake of the fast jobs. One of the most interesting in the group was a single Moretti Type 600. It ran the 1000 miles at an average of about 60 mph, experienced not the slightest trouble. The four-cyl., 600 cc (36½ cu. in.) engine is, unlike that of most minicars, a tiny work of art. It has an overhead camshaft, a bore/stroke



NEW FOR '51 is the knife-edged Triumph Mayflower five-passenger convertible. Price in England: \$1260, without tax. Max. speed is 65 mph

Twenty-four



MAYFLOWER top is manually operated, handsome upholstery is in leather and Vynide. Side valve engine is in MG displacement class

Motor Trend

ratio of less than unity, dual carbs, and pulls 21 bhp at 4200 rpm. It weighs about 1200 lbs. and sells for about \$1500—not a bad price for the continent. . . . Strange new law of the City of Rome bans sounding of auto horns for any reason whatsoever.

SPORT: Cruel blow to the British came with the 1951 Monte Carlo Rally regulations: only cars that use engines made in their own plants may participate. The new rule automatically disqualifies Allards, star performers of the '49 and '50 events, and many other "assembled" high-performance jobs. French competition is, perhaps significantly, unaffected by the ruling, but the reaction in England and elsewhere on the Continent has been violent, and pressure is being poured upon French race organizers and clubs. . . . The 1951 F.I.A. calendar lists 34 rallies, 22 Formula A events, 20 events each for Formula B and for sports and touring cars, and no less than 40 for 500 cc Formula C: a busy year ahead. There will be a 24-hour race at Nurburgring. . . . The Manx (Isle of Man) Automobile Club is hatching plans for a production or sports car race over the superb 37½-mile I.O.M.T.T. motorcycle course. . . . A Jag XK120, driven by Leslie Johnson and Sterling Moss at Montlhery, was the world's first standard production sports car to average over 100 mph for a solid 24 hours. Although the Jag had all its tires changed once, its average speed was 107.46 mph and the final hour was done at 112.40. A total of 2579 miles was covered in the 24-hour period and the car gave not one whit of trouble. Even tire changes were in the nature of prevention rather than cure. . . . More nice work at Montlhery, this time by a sedan, was executed by Anthony Crook in a Bristol 401. Official time for a one-hour run: an average 104.78 mph.

CAR OF THE MONTH: The Dyna Panhard Type 120 falls in the "little car but lots of automobile" class. No undue enthusiasm is at work when one refers to the Dyna as a fabulous job, one of the small-scale classics of automotive history. The car is new, but the facts of its superiority are abundant. The most staggering proof came in the 1950 French Alpine Trial, in which six of these lightweights zipped over 2000 miles of tough mountain roads at high speeds,



AN OUTSTANDING post-war achievement is the two-cyl., air-cooled Dyna Panhard of Alpine Rally fame. See description in Car of the Month

every one of them finishing without loss of a single point. The inside story of the Dyna is radical: the engine is air-cooled, its two opposed cylinders having a volume of just 745 cc (45½ cu. in.). Cylinder heads are non-detachable, contain pushrod-operated, torsion bar-sprung valves. Output is 32 bhp at 5000 rpm. Drive is to the front wheels, torsion bar suspension and a four-speed box are used. A simple but comfortably appointed aluminum body keeps weight at a minimum, and gas mileage is in the 30-plus mpg range. Best part of all is the way the Dyna handles and rides—steering and braking are smooth, quick, and positive, suspension firm but gentle. Cornering is remarkable, top speed is just over 70 mph, price is \$1420, in France.

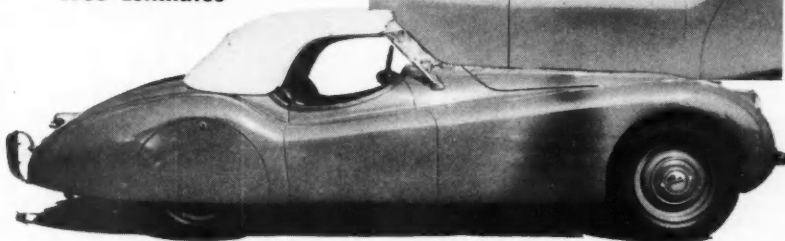
February 1951

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Twenty-five

CLASSIC COMMENTS

by Eugene A. Jaderquist

NOTE: This month, for the benefit of classic car fans, we are starting a new column, which will be a monthly feature intended to provide such fans with comments on classics. We wish we knew exactly what you want to see and read here, but we don't. Until you make your opinions and desires known, it will be necessary for our capable classic car staff writer, Gene Jaderquist, to govern both the content and style by his own prejudices and rationalizations. Your letters, however, will have an immediate effect on future issues. Suggestions, pictures, questions, problems, information—all will be gratefully received and noted. Standard publication rates will be paid for all pictures used.—Editor.

THE MOST handsome classic car I saw this past month was the Hispano-Suiza pictured here. This magnificent monster was exhibited at the First Annual Motorama by its owner and handler, J. D. Stroppe, a Pasadena insurance executive and member of the Horseless Carriage Club. It was originally built in Paris, in 1924, for King Alphonse of Spain. Million-Guinet built the phaeton body around the six-cyl. chassis.

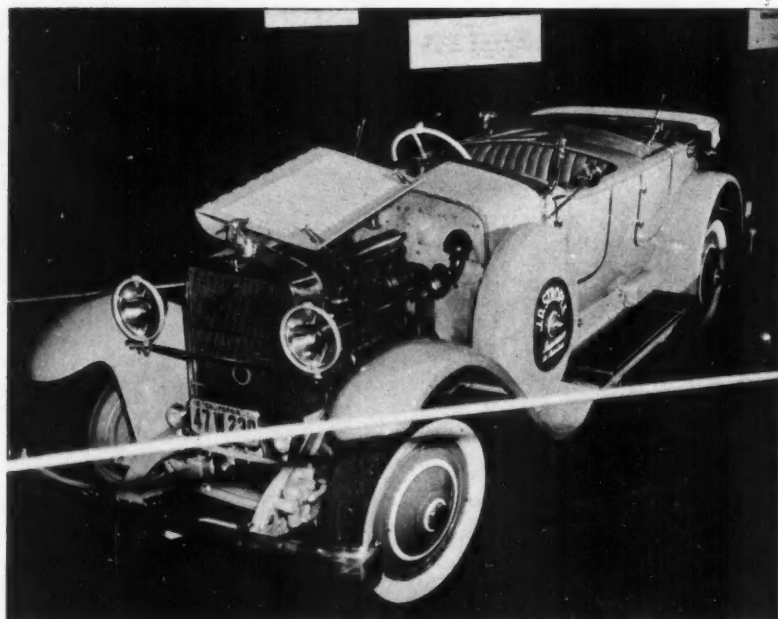
During the 20's and 30's, the Hispano-Suiza had an unmatched reputation for "chic." Rolls was dependable, Duesenberg was powerful, Isotta was stately, Bugatti was razor-keen, Mercedes was a man's sports car, Hispano-Suiza was smart and fashionable. It went with the clothes of the fashion capital of the world. Women liked it because it handled easily, due to the fact that most of the weight was sprung over the rear wheels, leaving the front wheels easy to steer. The six-cyl. engine had both power and speed, too. Even now, with the engine in need of major repairs, Stroppe's Hispano will clock 85. Twenty-five years ago that was a fantastic speed.

Nineteen twenty-four was the first year of the Hispano-Suiza "Boulogne" model, so named after a race won by a different Hispano engine on this chassis in 1923. The horsepower rating of the engine was 45, an increase of eight over the year before. Some of these "Boulogne" models have been clocked at over 100 mph, Stroppe's among them.

In the United States, the Hispano-Suiza never attained the popularity of the Rolls-Royce or the Mercedes-Benz. For this reason, it is rare that the classic-car collector finds a Hispano in a used car lot or listed in the classified columns of the Sunday paper. When they are run to earth, more often than not they are too expensive for any but the most affluent enthusiasts to purchase. A small clique of the most ardent Hispano fans have managed to corner the small American supply of well-designed, restorable bodies.

In going over the Stroppe Hispano with a magnifying glass it is impossible to find any fault with its present condition. Two years and \$4700 were spent to bring the body to its exact original state. The work was done in Long Beach, California, by Glen Thomas, a new-car dealer with a keen eye for classic cars.

The light beige upholstery cost \$800; the two-tone green finish of highest-quality materials and workmanship about \$400. Each tiny piece of chrome is new. All that remains to be done is the engine work and the Stroppe's, father and two sons, will do that themselves in their home machine shop.



THOMAS J. MEDLEY

The radiator ornament, by the way, is a flying stork. It was the mascot of Captain Guynemer's famed French flying squadron during the First World War. Fellow graybeards will remember that Captain Guynemer was the foremost French 'ace' and one of the popular heroes of France. M. Birikoff, designer of the Hispano-Suiza, built the V-8 airplane engine that powered the French air force and thus earned the right to use the flying stork as a symbol of daring and speed for his post-war automobiles.

Any Hispano-Suiza is classified as a classic car. Or almost any Hispano-Suiza, just as the "almost" qualification must be added to other historic firms like Rolls-Royce, Packard, Mercedes. Just what a classic car is, is difficult to define. It might be well, however, to mark some approximate boundaries.

A classic car can be a member of the Horseless Carriage Club, but not all antique cars are classic cars. The antique is preserved mainly for its historic value while the classic car is restored for its beauty. The antique is not practical to use for long trips, regardless of the work done on it but the classic car is perfectly capable of a trouble-free, comfortable cross-country jaunt if it has been restored sufficiently.

Classic cars are still being made. Rolls-Royce, Talbot, Delahaye, and Daimler all make classic cars today. Thus the classic car cannot be rigidly defined by age. It is rather a matter of function and appearance.

Original cost is a partly reliable guide to the definition of a classic car. But then there is the entire American compromise group of cars to consider. When does a '36 Packard become a classic car and when is it a stock car? If the body carries a special plate stamped with a maker's name it is a classic car. Yet some of the stock cars were quite well-made and very attractive so it is hard to rule them out. And then there is always the Auburn speedster. This is probably the most successful speedster body made in America in the middle thirties, yet it only cost \$1,000 FOB at Auburn, Indiana. It was very definitely a production-line design and

not a custom body. Should it be excluded from the classic-car group?

Appearance is not an infallible guide, either. Any Rolls-Royce of the twenties or thirties deserves the name of classic car because of the almost superhuman perfection of detail. Yet some of these Rolls-Royces were the most hideous creations ever designed.

Send me some definitions of your own. We'll be only too glad to print the one that seems to say the most in the fewest words.

In the mail this month are several letters from readers of MOTOR TREND. W. R. Nordleaf, Bremerton, Washington, writes to ask for help in locating a trunk rack and some arm rests for his '34 Packard Super 8 coupe. He lists a few cars recently advertised in his area: '37 Lincoln Conv. Sed., body by LeBaron; '36 Packard 12 Conv. Cpe., stock body, condition poor. Asking price, \$250; '38 Rolls-Royce 4-door Sedan, good condition, asking price, \$1,250; '31 Duesenberg Conv. Sed., engine good, body poor. Asking \$1,850.

Another correspondent, E. J. McClernan, Pittsburgh, Pennsylvania, has found a Pierce-Arrow custom phaeton that was first sold in 1937. This job is complete with double cowl, windows in front and side-curtains for the rear, trunk, chromed wire wheels, overdrive, and even chromed nuts on the heads. Asking price is \$450. Sounds like an excellent bargain. From the best information I have at hand, this would probably be one of the custom bodies made for Pierce-Arrow by Brunn at a cost of between \$6,000 and \$7,000. No stock sport phaetons were made by Pierce-Arrow after 1933. Unless the body is rusted out or damaged seriously in some other way, the price of \$450 is reasonable.

Roger Huntington, automotive author, writes that he is now busy restoring a '32 Packard Twin Six roadster. He also mentions the fact that Dietrich, famous for his superb Lincoln and Packard bodies in the '30's, is still very much in the custom-body business in Grand Rapids, Michigan. Dietrich has just completed and delivered the fleet of Lincolns that were furnished Presi-

dent Truman for White House use.

If you're familiar with the short stories of John O'Hara, you've probably read the beautiful mood piece about the young couple forced to part with their partially restored Duesenberg.

From writers to mechanics is a long jump, but probably no other class of specialist is so necessary to the classic-car owner. I like most mechanics. They are honest, hard-working guys trying to grub a decent wage out of a tough job. But, as in every racket, a few greedy or incompetent men are giving the entire group a bad name. In the hope that the bad ones can be identified and isolated, this column would like to hear of your experiences with mechanics. This will serve the dual purpose of identifying the bad and locating the good. It is never easy to find a man capable of rebuilding a Rolls or an Isotta or even a Packard 12, so if you know somebody who can do these things and have seen samples of his work, drop us a line. We'll keep the name on file and pass it along to others.

Mechanics: If you are experienced and like to work on classic cars, please tell us.

Specialty-Shop Owners: If you can do jobs

like matching original tops and upholstery on classic cars, or if you can furnish any special services to classic-car owners, write and give full details.

The most frequent question asked in letters concerns price. How much is a '33 Rolls phaeton worth? What should be paid for a Packard speedster? I don't know. The most helpful information for these collectors would be a list of similar cars and the prices paid for them. We will continue to print prices when we can, but need help. If you will send us information from your locality, we'll include it in future columns. Where possible, give the make, body-maker, condition, and the body style.

That's about all for now. Next month, *Classic Comments* will feature Herb Shriner's '34 Packard phaeton. This car was originally built by LeBaron for Alexis de Sakhnoffsky and sent to Paris, where it won first prize for its body. Herb, a television comedian working mainly in the New York area, has spent \$2,000 to bring it back to original condition.

Send us a picture of your car and full details about it. If it is chosen as car of the month for this column, *MOTOR TREND* will give you a free, one-year subscription.

Packard Motor Trials

(Continued from page eleven)

should help a person decide if a car is a good buy. Since the number given the Packard 200 (equipped with Ultramatic) is the first one given a car in this price category (\$2501-2700) a comparison is difficult, but the lower the number, the better the buy and on this basis the Packard is a good buy.

You would have to be shopping for a medium-high priced car before you could consider buying the Packard 200, but if you have an appetite for luxury—and can afford it—you definitely should not overlook this car. The Packard 200 has comfort, class and an all-around roadability that is hard to beat.



WHEN counterbalanced trunk lid is raised, it exposes a spacious (32½ cu. ft.) compartment

TABLE OF PERFORMANCE

DYNAMOMETER TEST

1200 rpm (full load)	25 mph	37.5 road hp
2000 rpm (full load)	41.5 mph	61 road hp
2850 rpm (full load)	63 mph	80 road hp

ACCELERATION TRIALS (SECONDS)

Standing start ¼-mile	:22.74 (H)*; :21.04 (L-H)**
0-30 mph	:07.87 (H); :06.01 (L-H)
0-60 mph through gears	:20.66 (H); :17.31 (L-H)
10-60 mph in high	:18.13
30-60 mph in high	:13.28

*Shift using HIGH only. **Shift using LOW, then to HIGH.

TOP SPEED (MPH)

Fastest one-way run	95.74
Average of four runs	93.17

BRAKE CHECK

Stopping distance at 30 mph	32' 11"
Stopping distance at 45 mph	96' 2"
Stopping distance at 60 mph	236' 0"

FUEL CONSUMPTION (MPG)

At a steady 30 mph	19.59
At a steady 45 mph	15.44
At a steady 60 mph	13.57
Through light traffic	15.68
Through medium traffic	12.49
Through heavy traffic	11.34

SPEEDOMETER CHECK

At 30 mph indicated 31 mph	3.3% error
At 45 mph indicated 48 mph	6.7% error
At 60 mph indicated 65 mph	8.3% error

GENERAL SPECIFICATIONS

ENGINE

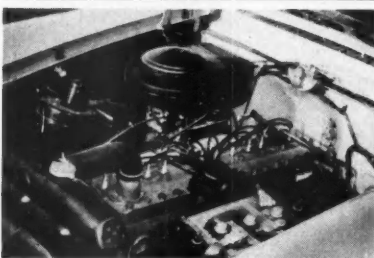
Type	L-head, in-line 8
Bore and Stroke	3 1/2 x 3 3/4
Stroke/Bore Ratio	1.07:1
Cubic Inch Displacement	288
Maximum Bhp	138 @ 3600 rpm (with Ultramatic)
	135 @ 3600 rpm (with conventional)
Bhp/Cubic Inch	.479
Compression Ratio	7.5:1 (with Ultramatic)
	7:1 (with conventional)

DRIVE SYSTEM

Transmission—Conventional three speed; Ratios:	Low—2.43:1, Second—1.53:1, Third—1:1, Reverse—3.17:1
Ultramatic Ratios:	Low—4.37:1, High—2.41:1, Direct—1:1, Reverse—3.94:1
Rear Axle—Hotchkiss drive, hypoid axle, Ratio: 3.9:1	

DIMENSIONS

Wheelbase	122 ins.
Overall Length	209 3/4 ins.
Overall Height	62 1/2 ins.
Overall Width	77 1/2 ins.
Turning Radius	22 1/2 ft.
Weight (Test Car)	4090 lbs.
Weight/Bhp Ratio	29.6:1
Weight/Road HP Ratio	31.1:1
Weight Distribution (Front to Rear)	55/45%



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ACCESSORY TRIALS

Wolfer "Clean-Oil" Valve Filter

SLUDGE is the enemy. . . . And the basic purpose of any oil filter is to eliminate that enemy from the oil which is the lifeblood of the modern engine.

In the Trade Topics feature of the Dec. '50 issue of MOTOR TREND we mentioned briefly the new Wolfer "Clean-Oil" Valve Filter for Chevrolets. This unit (1/2 the size of conventional filters) has an internal mounting without any outside supports or lines. It is installed in place of the oil distributor valve on the rocker arm assembly, and filters all the oil entering the valve mechanism through a Purolator micronic element. The idea is to trap and remove all contaminants from the valve oil at the point of wear.

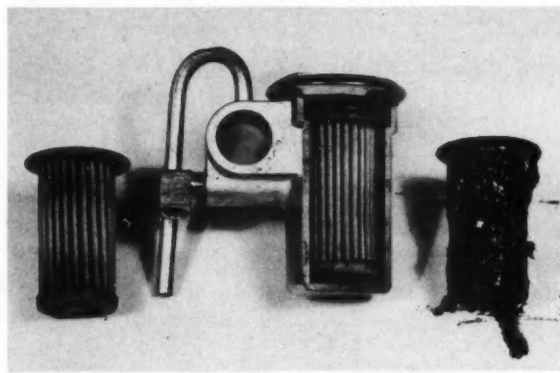
We were interested in appraising the "Clean-Oil" unit on two separate counts—first, as preventive medicine; second, as a corrective. To effect this purpose tests were made on two Chevrolets of widely differing personalities.

One unit was installed at the Harry Mann Chevrolet Agency on a brand new 1950 Chevrolet Powerglide sedan. This car was

let with a speedometer reading of 47,000 miles. This car was lubricated with a popular brand oil, and did not have a regular filter. The car was driven under normal city driving conditions. The oil was changed on schedule at the 1,000 mark. At that time the valve assembly was examined and found comparatively clean. However, the "Clean-Oil" Valve Filter element was full of sludge and required replacement. At the 2,000 mark, when the oil was again changed, the valve system was perfectly clean. This time the filter element, while dirty, was in no way caked up as was the first.

The cleaning action of the valve filter in this second test can be labeled corrective medicine. The owner of the car states that there has been a marked improvement in engine performance since the initial installation.

Examination of the sludge in both test cases revealed little moisture and no gasoline content, the factors responsible for oil dilution. This may be accounted for by the location of the filter in the heart of the engine, the area



E. RICKMAN

equipped with a standard factory filter and lubricated with a popular brand name oil. The car was used under normal conditions in the local area for the first 500 miles, then driven on a trip to Texas at consistently high speeds. The engine performed excellently and was carefully maintained throughout the trip, the oil being changed punctually every 1,000 miles. On return to Los Angeles the elements of both the standard and the Wolfer filters were removed for inspection at a speedometer reading of 6826 miles.

There was hardly any noticeable sludge formation in the standard filter. When the valve cover was removed we discovered the oil to be perfectly clean and the valve assembly spotless. But . . . the Purolator element in the "Clean-Oil" filter was something else again! It was solidly caked with black, sticky sludge, containing Texas grit along with the usual varnish and asphaltens.

If the Chinese sages were correct, the above picture should tell the story. On the left is a new element, in the center a cut-away of the "Clean-Oil" filter, and on the right the very element we removed from the test car. Chalk one up for preventive medicine!

John Kimbrough, Service Manager of the Harry Mann Agency, states that with the advent of hydraulic valve lifters and the growing popularity of O.H. valve systems, this kind of preventive medicine is definitely worthwhile.

The second test was made on a '48 Chevro-

let of greatest heat. All such volatiles pass off as vapors.

We are impressed with the "Clean-Oil" Valve Filter as both a preventive and a corrective agent in safeguarding performance of the Chevrolet engine. It should be stimulating news to many car owners that the unit will shortly be available for all O.H. valve systems.

The installation itself is comparatively simple . . . especially if, like most motorists, you put such matters in the hands of your corner mechanic.

PREVIOUS MOTOR TRIALS

MG-TC, 1950 Studebaker Champ.....	Oct. '49
1950 Buick Special.....	Dec. '49
1950 Ford V8.....	Jan. '50
1950 Hudson Pacemaker.....	Feb. '50
1950 Plymouth.....	Mar. '50
1950 Mercury.....	May '50
1950 Nash Rambler.....	June '50
1950 Oldsmobile 88.....	July '50
1950 Chrysler New Yorker.....	Aug. '50
1950 Chevrolet.....	Sept. '50
1951 Kaiser.....	Oct. '50
1951 Henry J.....	Nov. '50
1951 Nash Statesman.....	Dec. '50
1951 Ford.....	Jan. '51

Painting Your Car?

If You Intend to Paint Your Car Soon,
You Should Read This First

by E. A. Jaderquist

FIVE-THOUSANDTHS of an inch of paint is all that stands between the bare metal body of your car and the unfriendly elements. That's less than the thickness of three pages of this magazine. Yet this film will withstand the heat of Death Valley, the cold of northern Montana, the salt air of Atlantic City and the rain and wet snow of Seattle. If properly coddled, the painted surface of the Detroit automobile will last as long as the car. With careful cleaning and polishing at respectable intervals your car will carry its original color and much of its gloss right into the junkyard for execution at the hands of the wreckers.

The business function of paint is to protect the surface of your automobile. Most paint manufacturers and paint-shop owners concede that any standard product on the market today will give ample protection. Argument begins when the subject of beauty is introduced. Here the enamel men tee off against the lacquer fanciers and the consumer is lost in a din of chemical terms and painter's cant. As usual in such arguments there is a lot of right on both sides.

Modern painting began in 1925 with the perfection of effective solvents. In 1922, it had been discovered that Cellulose Nitrate, the technical term for cotton fibers that have been steeped in a nitric acid solution, made an excellent base for a quick-drying finish for automobiles. Prior to that year, automobile paints had the approximate drying speed of molasses. In the great Michigan transportation mills entire assembly lines were slowed by the need for excessive drying time in the finish rooms. Oil-base varnishes, the old reliable coatings of horseless carriages, were not able to satisfy the demand for efficiency that had been met everywhere else.

Walter P. Chrysler is generally credited as being the man who first put the spurs to the paint engineers. At his urging, Chrysler factory specialists went into round-the-clock conferences and experiments. Proudly they announced to their employer that they had devised means to cut finishing time to a day and a half. Mr. Chrysler was astounded.

"We aren't speaking the same language, boys," he is reported to have said, "I meant an hour and a half."

They did it.

Today, half the American cars are finished with lacquer that is a direct descendant of these early experiments. The other half are dressed in the new synthetic enamels.

Enamel or Lacquer?

While the consumer is interested in the paint on his new car, he has no choice in the decision between enamel and lacquer. When the family car gets treated to a new coat of paint, however, the individual owner must balance expense against quality against beauty and come out with a satisfactory answer. Automobile refinishing is a big business today, and the owner of a shabby car can pay anything from \$19.95 to \$300 for finishes that require from six hours to three days to apply. An almost infinite choice of color is available for Dad to take home to the family for a final decision.

(Continued on page thirty-two)

February 1951

Will you still be wishing next Summer that
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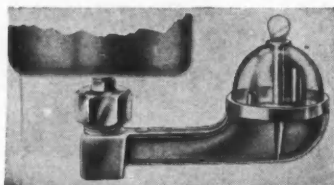
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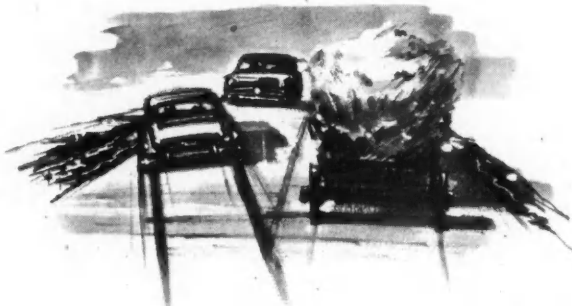
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"... and that taught me to drive"



ALBERT H. ISAACS

ABOUT a year ago I was taking a trip in a new '49 Dodge Wayfarer with several members of my family from Port Arthur, Texas, to New Orleans, Louisiana. It was the rainy season, and we had been running into showers all day. According to the condition of the surrounding country, a good deal of rain had fallen and at the particular time it was still coming down pretty good.

I was following a '49 Buick, which was behind a string of possibly seven or eight cars—the whole string moving about 50 or 55 mph. Naturally, traveling at this speed we would come upon slower travelers, which we had been passing at fairly regular intervals.

I noticed the head of the line start to pass a horse-drawn hay wagon and the rest of the line responded accordingly. Soon the Buick ahead of me was right alongside the wagon and then very quickly darted in front of it. I found myself directly beside the wagon and

facing a '49 Ford head-on.

That was a sight I shall never forget . . . I crammed on the brakes, which locked all four wheels but didn't seem to slow me down any. There wasn't time to get behind the slow-moving wagon and neither was there time to get in ahead of it. The only alternative was to take the left-hand ditch. That I did and found about 2 1/2 feet of water in it. Subconsciously, I hit second about the time I hit the water and luckily didn't get stuck. I pulled out on the highway with no damage except some shaken-up nerves.

Exercising two very bad habits got me in this situation. First, passing a vehicle without a full view of oncoming traffic. Second, following the car ahead too closely. I have now corrected both of these habits that got me in the situation "That Taught Me to Drive."

—L. Ray Sanford

The Sporting Scene

(Continued from page twenty-three)

Race, is now on the fire, sparked by Owen Gray, Lubbock, Texas, sportsman who came home 17th in the Juarez-Guatemala chase. Visualized is a course from Las Vegas to Reno and back, open to about 200 stockers, and Nevada civic groups are rallying around the scheme. But who puts up the money?

. . . National Sportmen's Championship title for 1950 has been awarded by NASCAR Commissioner Cannonball Baker to Mike Klapac of Warren, Ohio. Klapac nosed out Roscoe "Pappy" Hough, Paterson, N.J., veteran, by 10 points in a seven month title battle and Pappy called for a recount, but the verdict stood. Klapac's share of the \$23,000 in NASCAR point money was \$2620, Hough's was \$1806. Four hundred stock car races, by the way, were contested by 1500 NASCAR drivers in 1950 for a total of almost \$500,000 in prize money. Presentation of the point money to the Association's top drivers will take place at the Annual Victory Dinner in Daytona Beach on Feb. 8. The dinner will be part of Daytona's yearly Speed Week. Seven days of speed trials on the famous measured mile, open to U.S. and foreign cars, start on Feb. 3 and the week will be climaxed by a 150-mile Sportmen's Championship race on Feb. 10 and a 150-mile Grand National Circuit Championship go on Feb. 11. Both races, with a posted purse of \$8,000, will be held on the famous four-mile beach-road course. . . A new thing in stock car racing will be a winter series of indoor events held on portable board tracks moved from race to race and town to town. The sponsors: NASCAR and race promoter Ed Otto of Newark, N.J. The cars: light jobs of the Crosley, Volkswagen,

Renault, Austin A40 class.

* * *

"THE BONNEVILLE of Car Construction"—The Second Annual National Roadster Show—will draw huge crowds to the Oakland Exposition Building from February 20 to 25. The Bonneville comparison is justified by the fact that the National Roadster Show is a competition as well as an exhibition. A huge number of trophies will be awarded to cars judged best on counts of Beauty, Originality, Construction, and Novelty. The famous nine-foot perpetual cup which has been held for the past year by Bill Nie Kamp of Long Beach will pass to the builder of the car judged "Most Beautiful" on the show's closing day. The event will run for six days this year and at least 125 cars are expected to compete. The outstanding change in the '51 show will be greatly increased emphasis upon customized, restyled cars, with about half of the machines exhibited falling in this class. This year there will be the following competition categories for customs: (1) Custom Roadsters, (2) Custom Convertibles, (3) Custom Coupes and Sedans. They will be judged on the basis of Beauty, Construction, Originality, making for nine new divisions of competition. These are a few of the measures that are being taken to make the Second Annual National Roadster Show vastly more than just a show—rather, a live, exciting spectacle, devoid of dull moments. Entry information may be had by writing or wiring the Show Office: 918 Fallon St., Oakland 7, Calif.

—G.B.

Front or Rear?

(Continued from page nine)

complication of engine and transmission remote controls, which have given trouble in motor coach design, are other undesirable features of the rear engine mounting.

Let us turn now to an evaluation of the more important advantages claimed for the rear-engine design. It is claimed that additional traction of the driving wheels results from the higher loading of the rear axle. This is entirely true and, if the motoring public was primarily concerned with operation in loose sand or deep mud, or on icy pavements in hilly terrain, this advantage would be an important one. Increased difficulty would be experienced, however, in correcting a rear end skid resulting from a tire blow-out, or when operating on icy pavements.

Another advantage claimed for the rear-engine vehicle is that the elimination of the propeller shaft permits a lower floor level and lower center of gravity of the vehicle. There are indications that the limits of desirable lowness in silhouette and seating position have already been reached in some of our conventional car designs. Operators of today's diesel locomotives and transport airplanes are placed as high as possible in the structure of the vehicle for best possible visibility. While an individual astradome for the driver of an automobile would not be feasible, the basic principle must be recognized that as we get closer to the ground our visibility is reduced and, in addition,

glare from approaching headlights at night becomes increasingly troublesome.

Another reason advanced in favor of the rear engine mounting was the better adaptability of this arrangement to a streamlined design of motor vehicle. Although much can be done to reduce wind resistance, which is by far the major retarding force at high vehicle speed, it is generally accepted by design engineers that perfection in streamlining is no closer to attainment with the engine in the rear of the vehicle than with it located in the conventional position.

To sum up the case for the rear engine car, the factors which must be considered weigh strongly in favor of our conventional front engine design. We may conclude that the rear engine mounting would introduce serious problems in directional stability, make poorer use of the available space in the floor plan of a vehicle, cost more to manufacture, and introduce additional mechanical complications. Its one unquestioned advantage is the additional traction obtained from concentrated weight at the rear, desirable in negotiating deep mud and icy pavements. This advantage, while real, pertains only infrequently in average owner operation. Based on present know-how and experience in the realm of full size motor cars of high performance, we would not expect the rear engine design to have a very promising future.

Getting Into High

(Continued from page thirteen)

of the first one and the car then started moving under electric power.

The second dynamo also had its armature on the driveshaft, but its field was fixed to the car frame. The controller lever was next moved to position No. 2, the clutching effect was increased, less current went to the electric motor and the speed of the car was increased. This progression continued through positions No. 3, No. 4 and No. 5 to reach high. At this point the magnetic clutch was practically locked, the gas engine provided all the power, and the second dynamo acted as a generator to recharge the batteries. This was a good try, but poor acceleration and the weight and size of electrical motors probably killed it.

Packard produced America's first 12-cyl. model. Fred Duesenberg was first to equip his car for the Elgin road races with four-wheel brakes. When the other race drivers saw him streak towards the flat turns at 80 mph and quickly brake his speed to get around them, they were as sold on four-wheel brakes as were the spectators. It was some time before these first hydraulic brakes were available on production cars. They were, however, an important factor in Jimmy Murphy's Monte Carlo win that year, driving a four-wheel brake Duesenberg.

This year aluminum pistons, torsional vibration dampers and prism lenses for headlamps appeared, and clincher tires disappeared.

In 1916 came the beginning of increased emphasis on styling and pride of ownership. Cars were becoming reliable and a determined effort was getting underway to sell them to women. Edward S. Jordan, the first pioneer in this action, in announcing the Jordan car, said, "Men judge a car first by its appeal to the eye, second its appeal to the discernment. There is pride in the possession of a handsome, distinctive car; there is satisfaction in the use of a machine sound mechanically." His Jordan was an outstanding car.

A. L. Putnam, a former employee of the Stanley brothers, made disc wheels for Ford. Although they were not subject to breakage as were spoke wheels, they looked so heavy that they were only slowly accepted.

This year the slanting windshield, hand-operated windshield wipers, rear vision mirrors and stop lights appeared as standard equipment on a few cars, and A. C. Bennett, who had been working on carburetors since 1910, developed the first air cleaner.

The year 1917 saw the first example of what was to occur many times in the future. Hudson introduced the Essex as the low-priced companion of the bigger car. Its 3% by 5 inch engine developed 55 hp at 2800 rpm.

The Paige introduced the first coupe with V-windshield and rumble seat. The latter was to become an important place in the young lives of many for years to come. Frederick M. Furber developed the first automatic radiator shutter, used as an accessory on the Columbia. He also designed and marketed the Winterfront for other makes.

Spoke breakage, which plagued the owners of wire spoke wheels, was finally licked by the Wire Wheel Corp. of America. By using tapered spokes with the small end at the rim swaged to withstand vibration, wheel life was greatly increased. The ride was better using wire spokes since the weight hung from flexible spokes instead of resting on stiff wooden spokes.

By 1919 traffic had grown heavy enough for bumpers to become important and the wide faced Biflex bumper was developed. Christian Girl, a spring expert, in writing up the specifications for bumpers, wrote, among other things, that "they must not rust, must be assembled under tension to avoid rattles and must present a handsome appearance."

Indirect lighting for instrument panels appeared. Ninety per cent of all cars were now open models. This might be termed the sports car period of American cars. Ten years later, the proportion was to be reversed.

1951 Models



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Painting Your Car?

(Continued from page twenty-nine)

Research has shown that the American family, already a highly explosive unit, flies apart with dissension when the color chips are down. Dad, once he is weaned from black, shows a pronounced tendency toward the so-called cool colors, green and blue. Mother develops an irritating blindness toward anything but warm colors, yellow and red, preferably in pastel shades. If Sonny is progressive, he holds out for a metallic maroon deep enough to swim in or one of the variants of Aphrodisiac Purple so popular these days.

When the compromise has been made and Dad goes out to find the right man to apply the right shade of warm color, he still has a lot of deciding to do. Maybe this will help.

First, and very important, if the budget will not stand more than a \$50 rap, an enamel job is the best bet. Enamel can be applied more easily than lacquer because no cutting or rubbing is required once the final color is sprayed. The synthetic resins that make up the bulk of the solid material in a synthetic enamel are specially constructed to leave a smooth, glossy, hard finish while drying. This cuts labor costs to a minimum. Synthetic enamel costs less than lacquer and this cuts material costs. For the lower price of the enamel finish, the car gets excellent protection plus a dazzling surface. Since the pigments are the same as in lacquer, the range of colors is just as broad.

Synthetic Enamel Jobs

Two kinds of synthetic enamel jobs are available in most locations. The larger shops employ ovens, either infra-red or gas, and the smaller operators use sunlight and air to dry the enamel. According to the owners of infra-red ovens, other methods of drying and curing are inadequate because they only dry the surface of the paint. Under 250-degree infra-red exposure, the paint is baked clear through to the metal, leaving a uniformly hardened finish that will polish down just like lacquer. A surface-dried enamel will be soft underneath and thus will dull out when the film is penetrated. The Infra-red Auto Bake Painting Company of Los Angeles will match their \$49.95 finish against the field for durability and gloss. These ovens cost in the neighborhood of \$12,000 but they pay for themselves in speed. Air-dry painters claim that the chief asset of the ovens is their drying speed; that the old method of curing enamel is just as effective.

Lacquer Finishes

When price is not of primary importance, the consumer must consider lacquer finishes. Here the total cost of work can range between \$50 and \$300, occasionally a little higher or lower. For the past 25 years, lacquer has been the material used on the most expensive automobiles where appearance takes precedence over expense. Now that the synthetic enamels have improved, lacquer enthusiasts admit that an enamel gloss is just as high and sometimes higher than a lacquer finish. But enamel does not have the depth, the richness of a high-quality lacquer finish. Nor is lacquer, with its quick, even drying, as susceptible to that annoying phenomenon known as "orange peel."

Good technique in applying either kind of finish will eliminate the danger of the pebbly finish called "orange peel," but in most cases lacquer does flow on more smoothly. It seems to be true, too, that lacquer refinishing jobs have more depth than enamel. Lacquer hardens when the volatile solvents, added to spread the solids evenly, evaporate into the air. Enamel hardens by adding oxygen to

form a hard film on the surface. By its inherent structure, therefore, a lacquer finish is evenly cured and hardened while the enamel is harder on top than it is below. This gives lacquer its superior depth.

In application, each coat of lacquer must dry before the next coat is applied. After the last coat is applied, the finish is allowed to harden and then rubbed with a rubbing compound to bring it to gloss. With enamels, the second coat must be applied before the first can dry. No final buffing is necessary. With either finish, the tendency today is to use only four to six quarts of material for the complete job. More is unnecessary, due to the excellent protective qualities of modern materials. Too much paint can ruin the job by its own weight, eventually running and cracking.

Finishes which contain metallic particles are difficult to handle but the extra lustre obtained is much in demand today. Usually the metal employed is aluminum, obtainable in three different grinds varying from fine to coarse. Great care must be taken to see that the particles are distributed evenly over the surface of the car when spraying. Uneven distribution causes more light to be reflected in some spots than others, giving the finish a peculiar, dappled effect. The metallic paints tend to sag, due to the weight of the metal particles, and this is another headache for painters.

Preparation of Car

The most expensive part of the entire painting process, regardless of the finish used, is preparation of the car. If the old paint job is smooth and even, it is not necessary to strip the car to bare metal though this is sometimes done. For lacquer, the entire surface to be painted must be washed free of wax by using a special cleaner. Then the primer is applied to adhere tightly to the metal and over this primer a coat called the "surfacers" is applied. The function of the surfacer is to fill in all the tiny scratches and indentations too small to need filling with putty. The surfacer is sanded to smoothness and the car is washed thoroughly and allowed to dry. When dry, the surface is ready to receive the color coats. After the color coats are applied the final rubbing is done. For deluxe jobs the process is even more painstaking. The bare metal is first cleaned, then given a treatment with phosphoric acid before priming. After the surfacer is sanded, a sealer coat is applied to give more flexibility to the job.

During this entire process, all dust and moisture must be kept from the surface except during sanding. Painters usually wear rubber gloves so the oil and moisture from their hands won't spot the car. A special, dust-free spray booth is almost essential for a first-class job.

A \$225 lacquer finish will only use about \$30 worth of materials. The rest of the money goes for labor, equipment and know-how. The entire process is so standardized now, thanks to the untiring efforts of such major manufacturers as Rinshed-Mason and Sherwin-Williams, that the consumer can be sure of identical methods and materials in any part of the country.

Except at the Barris Kustom Shop in Los Angeles. Here all the accepted methods of procedure have been subjected to careful experiment and most of them modified greatly. Painting is an art with Sam Barris—an art that has almost become a sacred rite. The restyled Fords and Chevrolets and Mercurys that come out of this shop carry the most striking finishes on the street. Barris cars have taken beauty prizes at the top custom and hot rod shows in the country.

Barris Method

The Barris method begins with the primer.

In some cases, the prime coat is left on the car for two months before further painting is attempted. The owner drives in every week and the primer is sanded and another coat applied. When the car is finally taken in to the shop for its real beauty treatment, the surface is hard and smooth.

Next unorthodox step in the Barris procedure is to paint the car with black lacquer—five coats of it. This lacquer is allowed to dry for one week before it is prepared for the final color coat. The purpose of the black is to give the final job more depth.

When color spraying begins, an entire day is set aside for the job. During spraying, the color is sanded five times very lightly to make the surface absolutely smooth.

After the color is on, five coats of clear lacquer are sprayed on. This is the real secret of the terrific gloss and body that the Barris paint finish has. When the clear lacquer has dried completely, the car is "cut" with rubbing compound and then waxed. Barris guarantees the job for three years.

This emphasis has been placed on the work of a single shop because it represents a healthy departure from the standardized techniques of most commercial plants. Only the auto enthusiast will bother to pay for a job as painstaking and thorough as the Barris shop can do. For the average owner, the routine finish is adequate.

In all fairness, it must be admitted that other custom car shops have developed techniques as satisfactory as the Barris method. The experiments that have led to these improvements are costly and time-consuming to the shop-owners. The individual owner should never attempt these experiments himself unless he is willing to devote a lot of time and money to the task. One final warning: Don't try to use the Barris method given above. It isn't patented, but unless you have the exactly correct materials and mix them just one way, then apply them with all the special knowledge of years of experience with this method, you'll run into serious trouble.

SELL 'N' SWAP

NOTE: Due to the many requests for information on where to obtain hard-to-get parts, cars, etc., **MOTOR TREND** is starting this new column. If you're looking for a car that you can't find, if you have a car you'd like to sell or trade, check this column. We'll publish any reasonable request, first come, first served. Limit your copy to 25 words and base it on any of those shown below. We reserve the right to edit where necessary and are not responsible for accuracy of descriptions—Editor.

ADDRESSES—Own a 1923 Rolls-Royce and would like to contact other owners. John E. Christensen, 516 No. Marengo, Pasadena 3, Calif.

CUSTOM CAR—Looking for custom car to buy. Send picture and price to Wm. M. Schneider, P.O. Box 2345, San Diego, Calif.

CLASSIC CAR—1931 Pierce Arrow in excellent condition. New tires, engine and body perfect. 40,000 miles. Price, \$450. Capt. Charles Rich, 530-6 Kearney Ave., Ft. Leavenworth, Kansas.

PARTS—Positive displacement or centrifugal blower for 1937 Pontiac 8; to buy or have made. Harold Freeman, Box 3122 Queensboro Sta., Shreveport, La.

ADDRESS—Need addresses of firms who might have rebuilt transmission or second gear bearings for 1931-32 Chrysler 4-speed trans. Hugh Langhans, 1547 W. Courtland, Fresno, Calif.

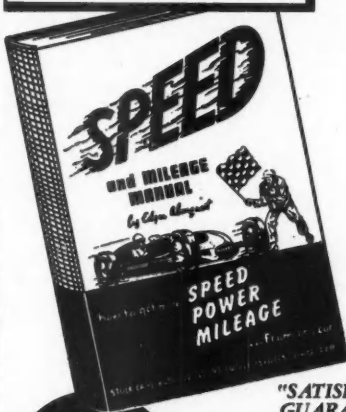
PARTS—Need good used Roots blower of 10 lbs. boost. Will pay \$150. Intended for use on Auburn V-12. Paul Bothwell, 3400 Harper St., Oakland 1, Calif.

CLASSIC CAR—1934 Packard V-12, 4-dr. town sedan. Fair paint, fine chrome, 70,000 actual miles. Running gear excellent. Only minor repairs needed to restore to original. C. R. West, 2966 Westerville Rd., Columbus, Ohio.

INFORMATION—Need valve, camshaft and ignition timing of 1919-20 Dayton Paige Detroit Roadster. Car will only do 65 and is supposed to do better than 100. John R. Swager, Salmon, Idaho.

February 1951

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FOR THE CAR ENTHUSIAST WHOSE INTEREST RUNS TO STOCK CAR MODIFICATION for better performance and/or appearance, Motorama was a gold mine. Some of the exhibitors were: Edelbrock Equipment Co. (heads, manifolds, pistons, etc.), Harman & Collins (cams, tappets, ignition), House of Chrome (all varieties of chrome accessories), Newhouse Automotive Industries (speed equipment, books), and Nicson (speed equipment). Other exhibits displayed at Motorama are discussed below.

THE NEW FRENZEL CENTRIFUGAL SUPERCHARGER FOR FORDS AND MERCURYS was the focal point of attention at the Warren Fraser stand (Culver City, Calif.) at Motorama. The unit mounts directly on the intake manifold, is driven by twin V-belts, develops six lbs. pressure at 4200 rpm, costs \$183.75. What does it do? Fraser reports these Russetta-supervised results on a single test car:

Test	Blown	Unblown
Top speed	100.046 mph	79.46 mph
Zero to 50 mph	8.1 secs.	11.4 secs.
Zero to 60 mph	11.0 secs.	16.3 secs.

NEWS FROM NEWHOUSE FOR WATER-BURNING FANS is the Octa-Gane "50" alcohol-water injector unit. Recent research work by the U. S. Dept. of Agriculture is largely responsible for this latest Newhouse design, intended to make engines run cooler, reduce detonation, make possible the burning of standard pump fuels in extremely high compression engines, reduce burning of valves, increase fuel economy. You can examine the facts for yourself by writing for extensive free literature to Newhouse Automotive Industries, Los Angeles. The same distributor also has available high compression heads for Nash 600 and Rambler, improved intake manifolds for Kaisers and Jeeps.

ENGINE-TRANSMISSION ADAPTOR HOUSINGS to permit the installation of '49 and '50 V-8 Lincoln and Cadillac engines with any '32 to '48 Ford transmission, including Ford, Mercury, Zephyr, Lincoln, Lincoln Continental, Ford 1½-Ton Trucks, '49 and '50 Mercs were displayed at Motorama by the McBar Machine Shop, Peru, Indiana, priced at \$65. Housings to install '49 and '50 Cad engines in '49 and '50 Fords will be in production soon.

THE HOWARD FUEL INJECTION SYSTEM FOR V-8s is at last becoming a production-line reality. The well-made unit was exhibited at Motorama and will be handled by Ansen Automotive, Los Angeles, will sell for about \$85.

AUTOMOTIVE JEWELRY—A GIGANTIC LINE, MODESTLY PRICED, was displayed at Motorama by Auto Accessories Co. of Los Angeles. Outstanding items were massive, full-width, V-center chrome grille trim for '49 and '50 Fords, Cad-type fender fins for Chev, Ford, Olds, Pontiac.

LATEST IN ELECTRO-DYNAMIC BALANCING EQUIPMENT showed (at Motor-

Interesting Exhibits...

Accessories and Equipment

On Display at Motorama

ama) how the Electronic Balancing Company is set up to balance rotating and reciprocating engine parts, at speed, to the finest practical limits. Assembling a rebuilt engine without regard to both static and dynamic balance may be cheap, but it's not economical. Many speed shops are agents for the firm, located in Long Beach, Calif.

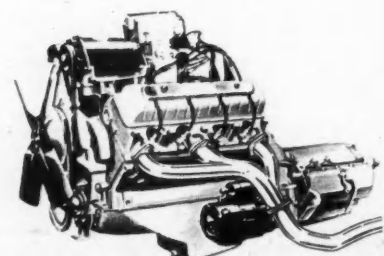
BELL AUTO PARTS' BIGGEST DRAWING CARD at Motorama was a demonstration rig that showed at a glance the fat, meaty sparks generated at low rpm by the new Harman & Collins 8R-100 magneto for pre-'49 V-8s. This eight-pole unit does away with the grief of accurately coordinating two 4-cyl. mags. Firing accuracy of the 8R-100 is a built-in feature made to last the life of the compact, direct engine-connected unit.

THE SO-CAL SPEED SHOP DREW ITS SHARE OF THE CROWD at Motorama with a display of the actual engine which powered the Xydias-Batchelor So-Cal Special to its latest Bonneville record. Another feature at this stand was a very convincing Kong Ignition demonstration layout, showing the super-lusty sparks that the new '49-'50 Ford-Merc Dual Point Distributor is capable of throwing over widely varying gaps. It sells for just \$17.95, exchange.

LUCAS DISTRIBUTORS, GOOD FOR THAT EXTRA PUNCH FOR TRACK, STREET OR BOAT USE, are now more readily available through an association made between Lucas of England and Weber Tool Co. of Los Angeles. The Lucas distributor (\$40) has a four-lobe cam, single coil, automatic centrifugal type advance, fits '32 to '41 Fords, and '42-'48 Fords (with an adaptor plate).

IF YOU HAVE A CADILLAC THAT "GOES," you'll want the new McAfee speedometer dial face that indicates speeds up to 130 mph. It is made to replace the 110 mph dial faces on '49-'50 Cads that have been hopped up through the use of the J.E.M. blower installations. The dial face is made of Plexiglas and is readily interchangeable.

EXHAUST HEADERS TO IMPROVE EFFICIENCY OF OLDS 88's are the result of the popularity of the Belond exhaust system on Fords and Mercs. This system, installed on a display Olds in Southern California Muffler Co.'s booth at Motorama, gives up to six hp increase over the stock system, is available with or without extra (or exchange) muffler. Prices: \$67.50 to \$74.50.



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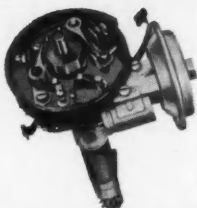
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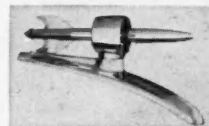
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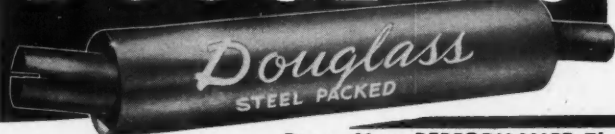
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LaSalle 39-40, Lincoln Zephyr, Continental, Packard	\$9.15

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